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Westinghouse	H-681T17 (Ch. V-2215-1) Tel. Rec. Prod. Chg. Bul. 52	186-1
Westinghouse	H-688K24 (Ch. V-2219-1) Tel. Rec. Prod. Chg. Bul. 52	186-1
Zenith	J733, G, R, Y (Ch. 7J03)	186-17

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SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 14 IN SET 174

WESTINGHOUSE MODEL 688K24 (Ch. V-2219-1)

Ch. V-2219-1	In later production of Ch. V-2219-1 a new integrating network, which contains the .01 capacitor (C78) and the 47K resistor (R81) in addition to the components included in the old network, is used. This new network is designated as Westinghouse Part #V-11192-1. If a new network is installed in a chassis that contains C78 and R81 as separate components they should be removed or if replacing a new unit with an old one C78 and R81 should be added. The connections on the new part differ from those in the original part. No. 1 goes to the junction of R79 and R80, No. 2 goes to chassis and No. 3 goes to pin #1 of V14.

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 12 IN SET 171

WESTINGHOUSE MODELS H-331P4, U, H-333P4, U (Ch. V-2164, U)

Ch. V-2164, U	To assure that the antenna circuit can be properly aligned, in some chassis, a 12MMF capacitor is added in parallel with the antenna tuning section of the variable tuning capacitor (M5). C4, connected from B- to the filaments of the 1R5 and 1U5, has been removed. The suffix U has been deleted from the Model No. and the Chassis No. This does not indicate a change in either the Model or the Chassis.

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 15 IN SET 167

WESTINGHOUSE MODEL H-681T17 (Ch. V-2215-1)

Ch. V-2215-1	It should be noted that Model H-681T17 uses a 17HP4 picture tube instead of a 17LP4 or 17VP4.

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 14 IN SET 154

WESTINGHOUSE MODELS H-350T7, H351T7 (Ch. V-2180 - 1)

Ch. V-2180-1	To improve sensitivity on the FM Band, R15 located in the AVC line, is changed to 1 megohm A dual capacitor (.005MFD - .005MFD) is used in place of the individual capacitors C6 and C7 located in the plate and screen circuits of the 6BJ6 FM-RF Amplifier on some sets. C30 connected between the 50C5 heater and ground was omitted in later production. In later production the multiple Ceramic Capacitor, C26, was replaced by individual capacitors. C26A, Diode RF Filter was omitted, C26B and C26D, Audio Coupling, are .005MFD and C26C, AF Amp. Plate, is 220MMFD.

PRODUCTION CHANGES
BULLETIN 52

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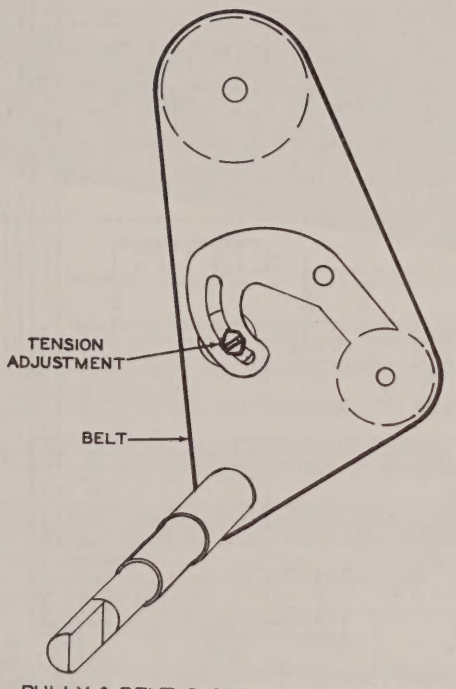
Ch. V-2216-3
V-2217-3

Except for the RF Tuner assembly the V-2216-3 chassis is the same as Ch. V-2216-2 and Ch. V-2217-3 is the same as Ch. V-2217-2. A schematic of the new RF Assembly which is designated as V-11333-1 is given on reverse side.

Ch. V-2216-2
V-2217-2

In later production of Ch. V-2216-2 and V-2217-2 using V-10880-2 RF Tuner, the connection between UHF Socket #2 and the switch is omitted.

In later production the dial-cord drive system has been replaced by a pulley and belt system as illustrated below.



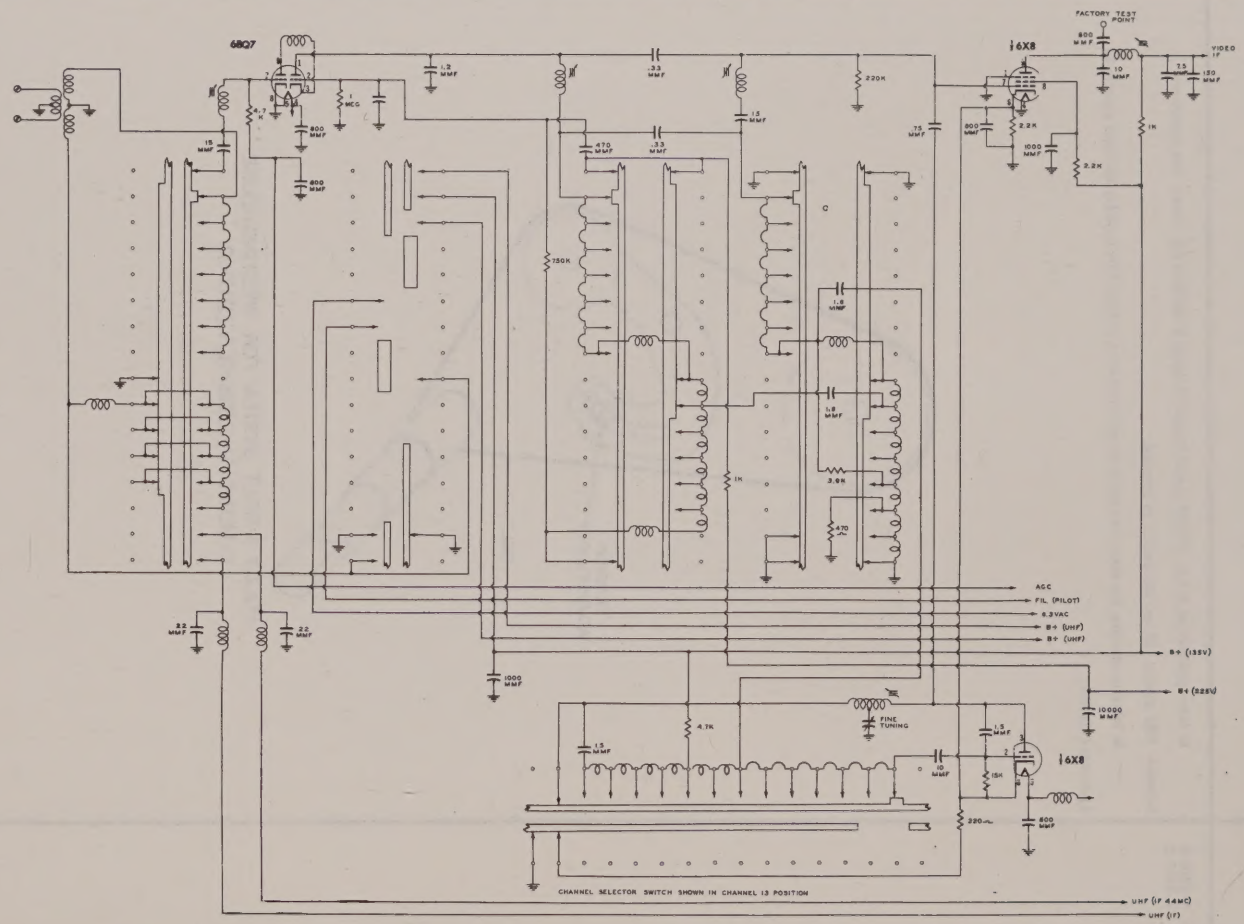
PULLY & BELT SYSTEM FOR WESTINGHOUSE
CHASSIS V-2216-2, V2217-2

WESTINGHOUSE MODELS
H-678KI7, H-679KI7, H-699KI7, H-700TI7, H-701TI7, H-702KI7, H-703KI7, H-704TI7, H-705KI7 (Ch. V-2216-2,3)
H-692T21, H-695K21, H-710T21, H-711T21, H-713K21, H-714K21, H-715K21, H-720K21, H-721K21, H-722K21 (Ch. V-2217-2,3)

(CONTINUED ON REVERSE SIDE)

WESTINGHOUSE MODELS

H-678K17, H-679K17, H-699K17, H-700 r17, H-701T17, H-702K17, H-703K17, H-704T17, H-705K17 (Ch. V-2216-2, 3)
H-692T21, H-695K21, H-710T21, H-711T21, H-713K21, H-714K21, H-715K21, H-720K21, H-721K21, H-722K21(Ch. V-2217-2, 3)



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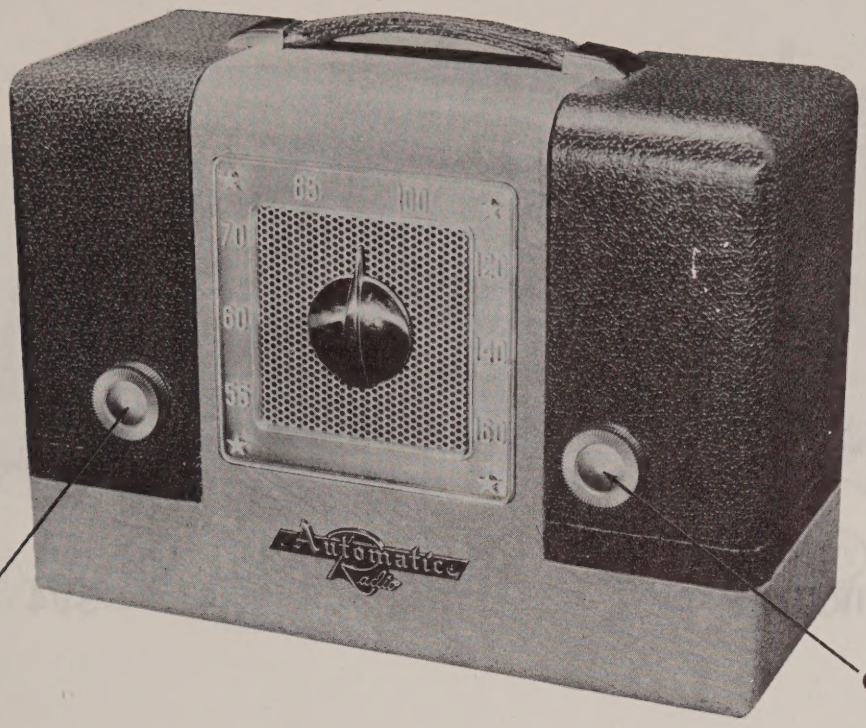
AUTOMATIC
MODEL C-54



AUTOMATIC
MODEL C-54

TRADE NAME	Automatic Model C-54
MANUFACTURER	Automatic Radio Mfg. Co., Inc., 122 Brookline Ave., Boston, Mass.
TYPE SET	Three Power Portable Superheterodyne Receiver
TUBES (Four)	Types 1R5 Conv., 1U4 (or) 1T4 IF Amp., 1U5 Det.-AVC-AF Amp., 3V4 Audio Output
POWER SUPPLY	110-120 Volts AC/DC (or) 9 Volts "A" Supply & 90Volts "B" Supply in Pack Form
RATING	.15 Amp. @ 117 Volts AC (or) 50 MA @ 7½ Volts DC & 10MA @ 90 Volts DC
TUNING RANGE—BROADCAST	538-1620 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 6 (grid) of 1R5 (V1). Low side to B-.	455 KC (400∿Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200MMF to reduce hum modulation.
2.	"	"	1620 KC	"	"	A5	Adjust for maximum output. If range of A5 is inadequate adjust trimmer at other end of stator plates.
3.		Loop	1400 KC	Tune to 1400 KC	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver . Adjust for maximum output. If range of A6 is inadequate adjust trimmer at other end of stator plates.

Replace chassis in cabinet and set pointer for symmetrical positioning at lower right and lower left extremes of pointer rotation.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AUTOMATIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	Converter	1R5	1R5	7AT	
V2A	IF Amplifier	1U4	1U4	6AR	
B	IF Amplifier	1T4	1T4	6AR	
V3	Det.-AVC-AF Amp	1U5	1U5	6BW	
V4	Audio Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AUTOMATIC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	■50	150	CE54	AFH2-16		UP5515		FP214	TVL-2435	
B	▲50	150		PRS12/250		BRH1225A		TC1502	TVA-1131	
C	200	10								
C2	.1	400	C104-4	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C3	100		CC101	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C4	.01	600	C103-6	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C5	.05	200	C503-4	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C6	220		CC221	SI220	D6-221	5W5T25	GP2K-221	UC-5322	5GA-T22	Note 1
C7	.002	600	C202-6	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C8A	50			SI50		TM5Q5		UC-545	5GA-Q5	
B	5000		♦YA-002-001	BPD-005	♦PC-90	TM5D5	♦1407-01	DC-525	5HK-D5	
C	2000			BPD-002		TM5D2		DC-522	5HK-D2	
C9	220		CC221	SI220	D6-221	5W5T25	GP2K-221	UC-5322	5GA-T22	
C10	.002	600	C202-6	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C11	.05	200	C503-4	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C12	.05	400	C503-4	P488-05		PTE4S5		PT415	4TM-S5	
C13	.1	400	C104-4-L	P488-1		PTE4P1		PT401	4TM-P1	Note 2

Note 1. Some Models use 100MMF in this application.
Note 2. Original unit includes coil. When replacing with other than Mfgr's part no. install coil exactly as original.
♦ Items C8A, C8B, C8C, R8A, R8B, R8C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUTO MATIC PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1 Meg	½	RV-44C	Q13-137	AG-63-Z	B-70-S	U-53	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-2	SWB-2	Not Req.	US-27	Attach to R1A

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: AUTOMATIC PART No.	IRC PART No.	NOTES
R2	220KΩ	½	R224	BTS-220K	
R3	10Meg	½	R106	BTS-10Meg	
R4	22KΩ	½	R223	BTS-22K	
R5	2.2Meg	½	R225	BTS-2.2Meg	
R6	10 Meg	½	R106	BTS-10Meg	
R7	10Meg	½	R106	BTS-10Meg	
R8A	4.7Meg	½		BTS-4.7Meg	
B	1 Meg	½	YA-002-001	BTS-1 Meg	
C	2.2Meg	½		BTS-2.2Meg	

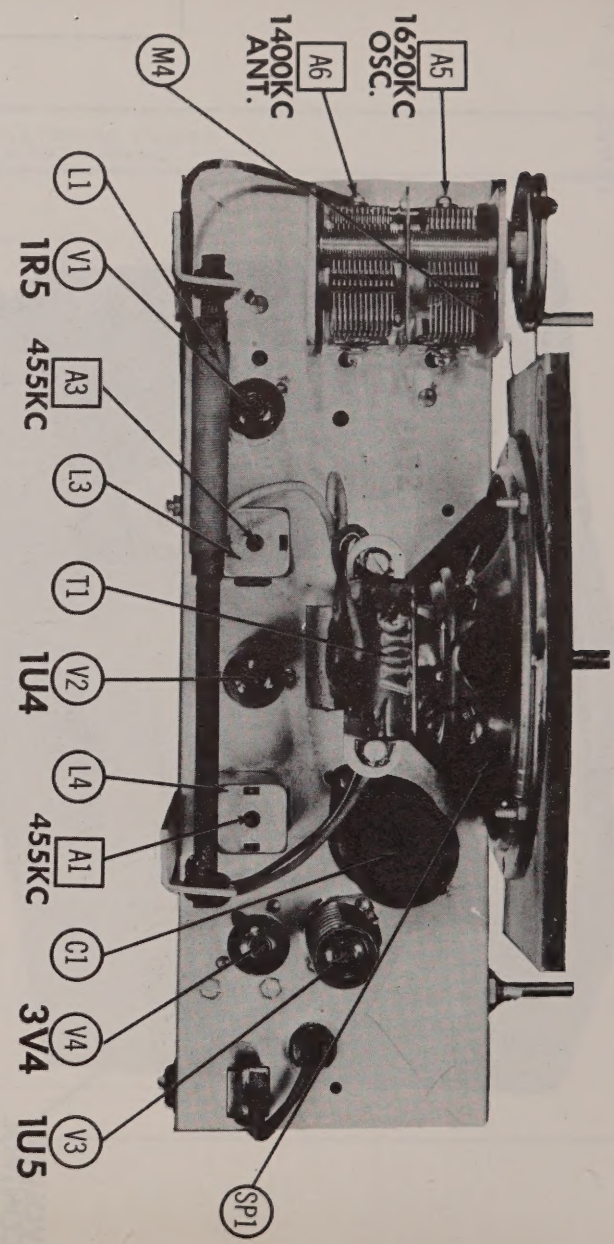
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: AUTOMATIC PART No.	IRC PART No.	NOTES
R9	15 Meg	½	R156	BTS-15Meg	
R10	560Ω	½	R561	BTS-560	
R11	1000Ω	1	R102-1	BTA-1000	
R12	2200Ω	7	RZ222.75	1 3/4A-2250	
R13	82Ω	2	R820-2S		
R14	2200Ω	½	R222	BTS-2200	
R15	560Ω	½	R561	BTS-560	
R16	220KΩ	½	R224	BTS-220K	

♦ Items R8A, R8B, R8C, C8A, C8B, C8C are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AUTOMATIC PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	7.6KΩ	5Ω	475Ω	.6Ω	TO-51017	A-8114	A-2900	RO-301	S-8X	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	AUTOMATIC PART No.	JENSEN PART No.	QUAM PART No.	
SP1	5"	PM	3Ω	PM-754	ST-105 Mod. P5-X	5A07	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	AUTOMATIC PART No.	MERIT PART No.	
L1	Loop Ant.	.2Ω		L-A54		
L2	Osc. Coil	2Ω	8.7Ω	L-051		
L3	Input IF	26Ω	25Ω	1655-11	BC-352	
L4	Output IF	26Ω	25Ω	1655-11	BC-353	

SELENIUM RECTIFIER

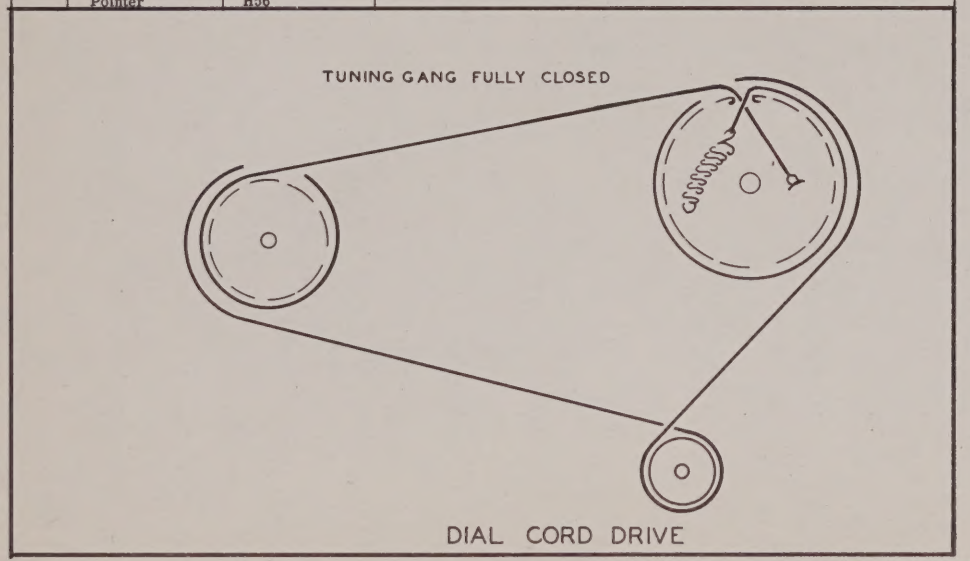
ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT	AUTOMATIC PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	
M1	.064A		NB5	5M4	1003	6S75	

BATTERIES

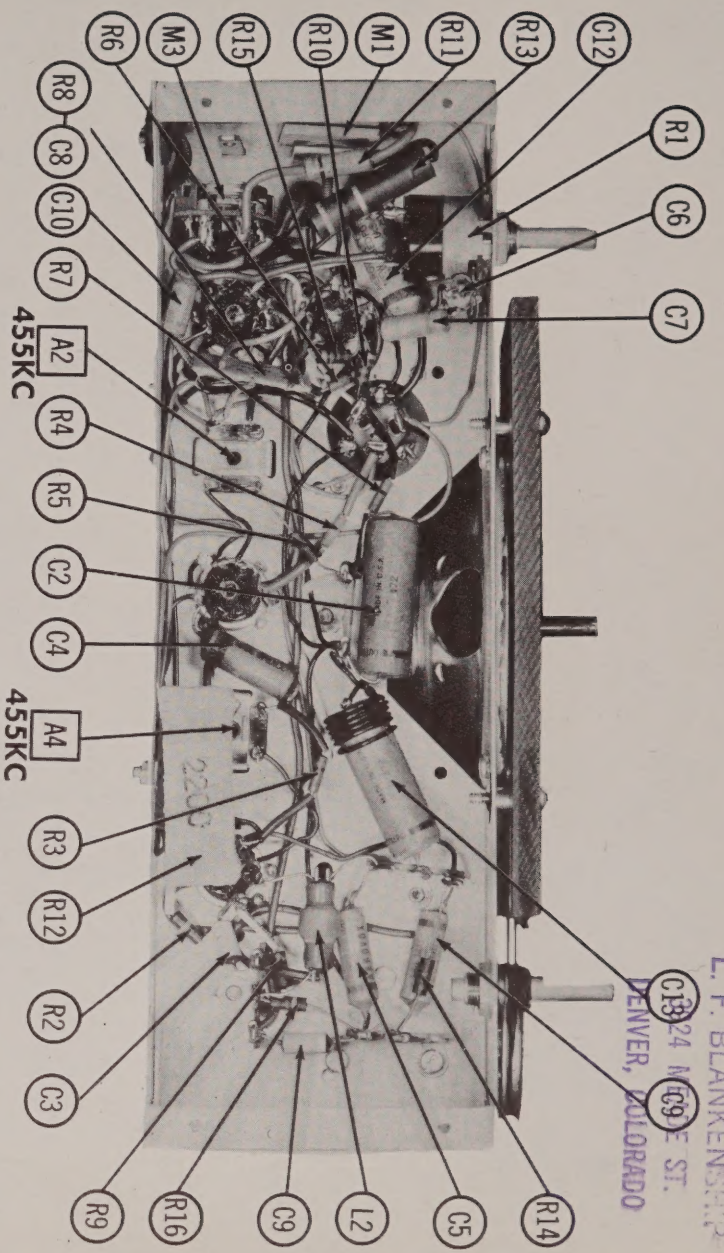
ITEM No.	VOLTAGE	AUTOMATIC PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	7.5V 90V				756			T6Z60	

MISCELLANEOUS

ITEM No.	PART NAME	AUTOMATIC PART No.	NOTES
M3	Switch	SW-51U	Power Change- Over
M4	2 gang Var. Cap.	DV-54	(26-415MMF, 29-208MMF)
	Cabinet	H541	
	Knob	H51	
	Dial	H543	
	Pointer	H56	



CHASSIS—BOTTOM VIEW



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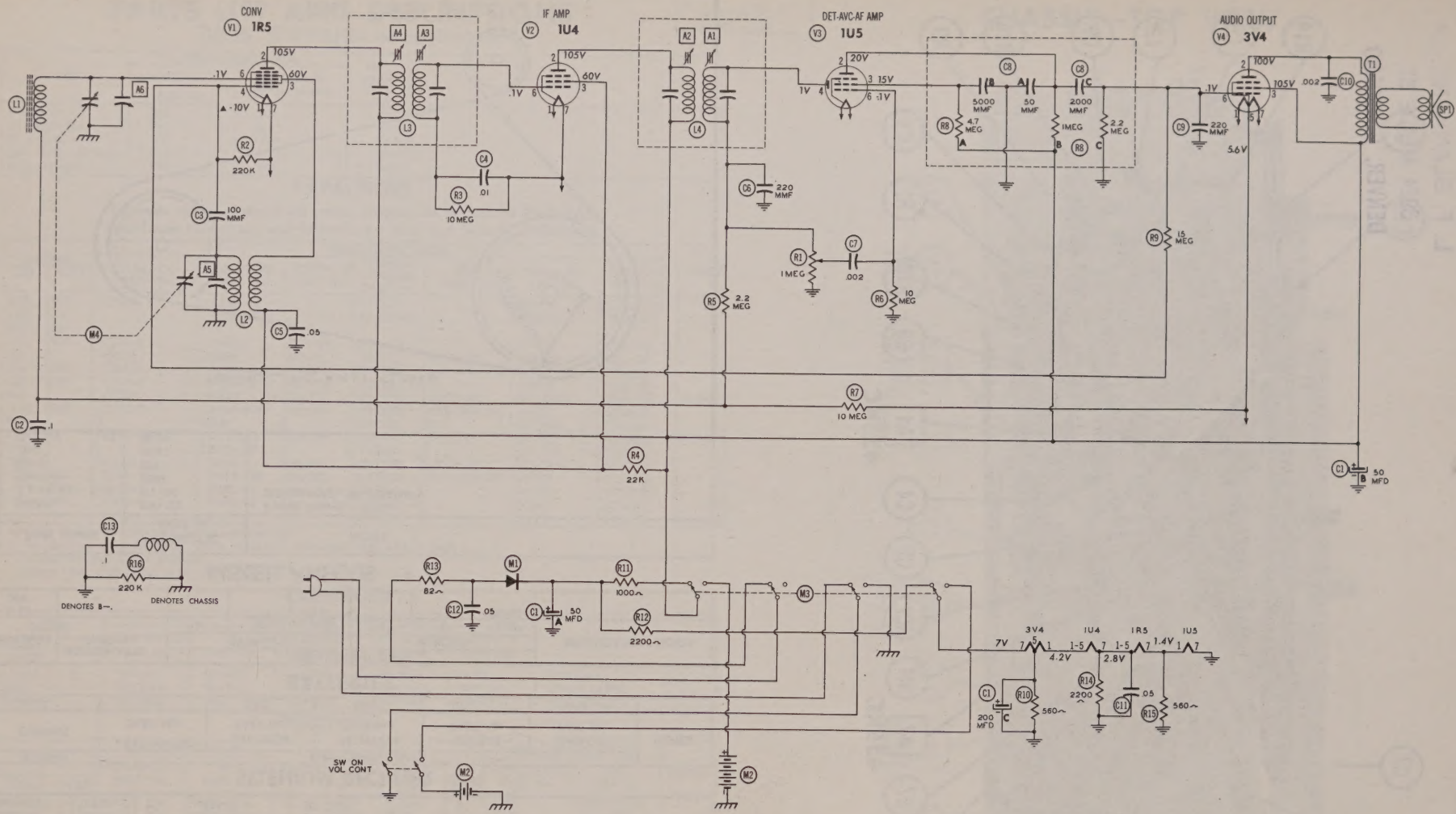

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	*	†1KΩ	†23KΩ	220KΩ	*	2.4Meg	*
V 2	1U4	*	†1KΩ	†23KΩ	INF	*	10Meg	*
V 3	1U5	*	†1 Meg	†4.7Meg	1 Meg	0Ω	10Meg	0Ω
V 4	3V4	*	†1.5KΩ	†1KΩ	0Ω	*	2.2Meg	*

ALL MEASUREMENTS TAKEN WITH POWER CHANGEOVER SWITCH IN AC LINE POSITION
† MEASURED FROM OUTPUT OF M1
▲ TAKEN WITH VACUUM TUBE VOLTMETER
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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186-2

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

*TRADE MARK

CROSLEY MODEL EU-17COM, TOB, TOM, (Ch. 380, 383), EU-21CDB, CDM, CDN, COBa, COMa (Ch. 381, 384)

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MODEL EU-17TOB

CROSLEY MODEL EU-17COM, TOB, TOM, (Ch. 380, 383), EU-21CDB, CDM, CDN, COBa, COMa (Ch. 381, 384)

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DATE 11-52 SET 186 FOLDER 3

PHOTOFACT* Folder
*TRADE MARK

CROSLEY MODEL EU-17COM, TOB, TOM, (Ch. 380, 383), EU-21CDB, CDM, CDN, COBa, COMa (Ch. 381, 384)

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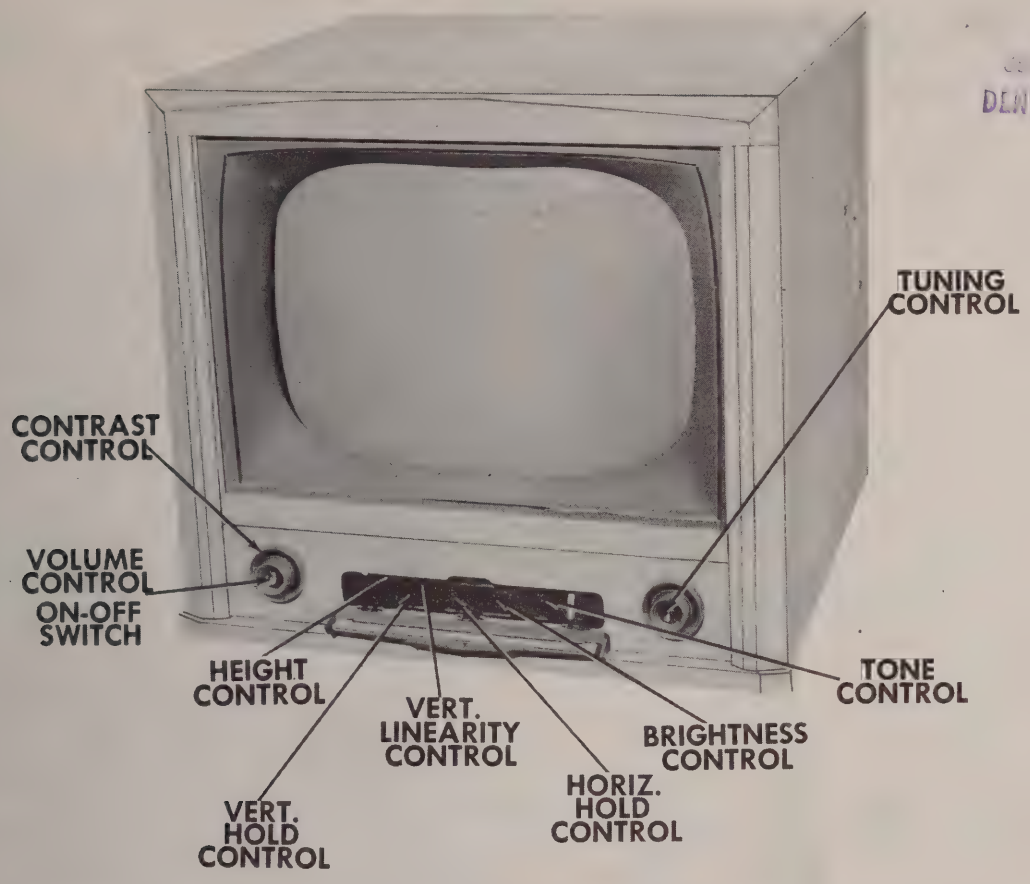

CROSLEY EU-17T0B

TRADE NAME	Crosley Models EU-17COM, 17TOB, 17TOM (Ch. 380, 383); EU-21CDM, 21CDN, 21COBa, 21COMa, (Ch. 381, 384)
MANUFACTURER	Crosley Corp., 1329 Arlington St., Cincinnati, Ohio.
TYPE SET	Television Receiver
TUBES	Twenty-Two
POWER SUPPLY	110-120 Volts AC-60 Cycle — RATING 1.88 Amp. @ 117 Volts AC
TUNING RANGE	CHANNELS 2 thru 13 (Continuous Tuning)

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CROSLEY MODEL EU-17COM, TOB, TOM, (Ch. 380, 383), EU-21CDB, CDM, CDN, COBa, COMa (Ch. 381, 384)

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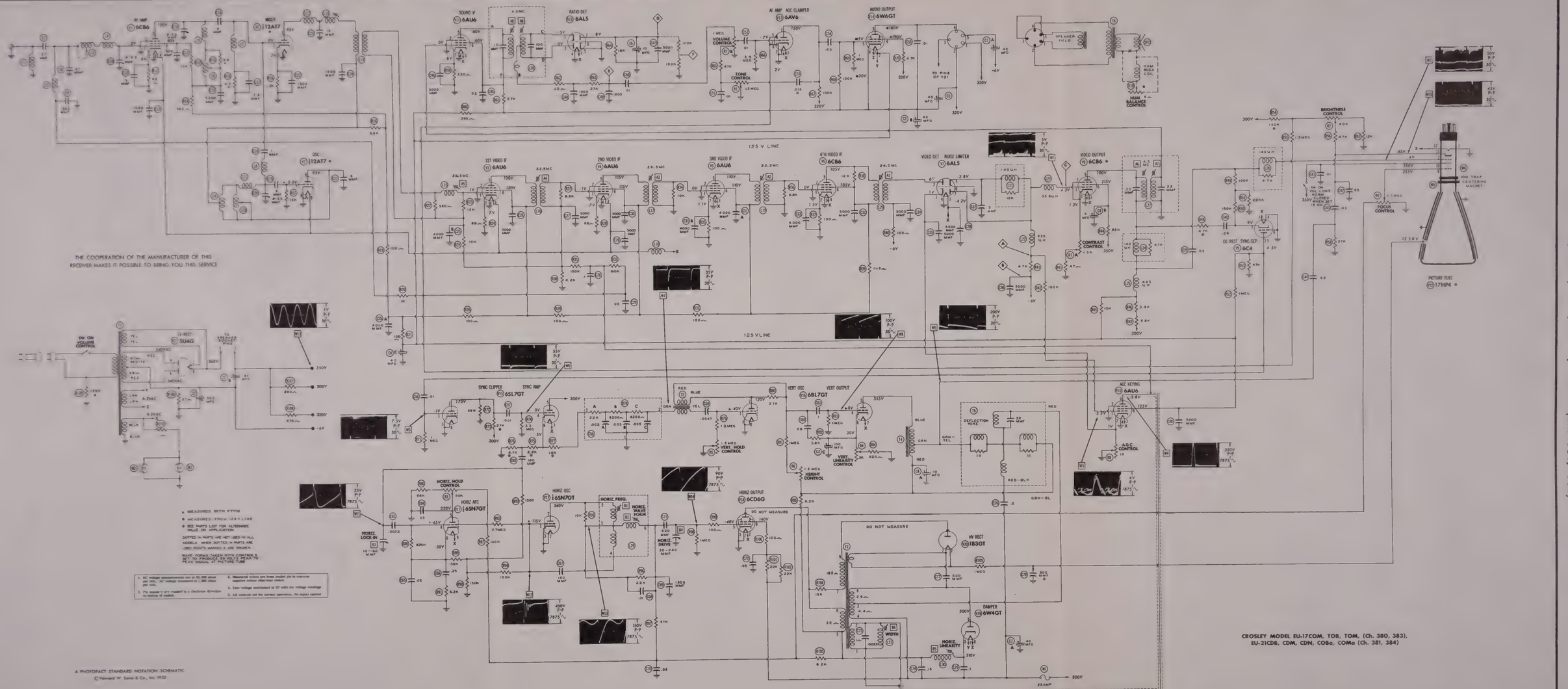
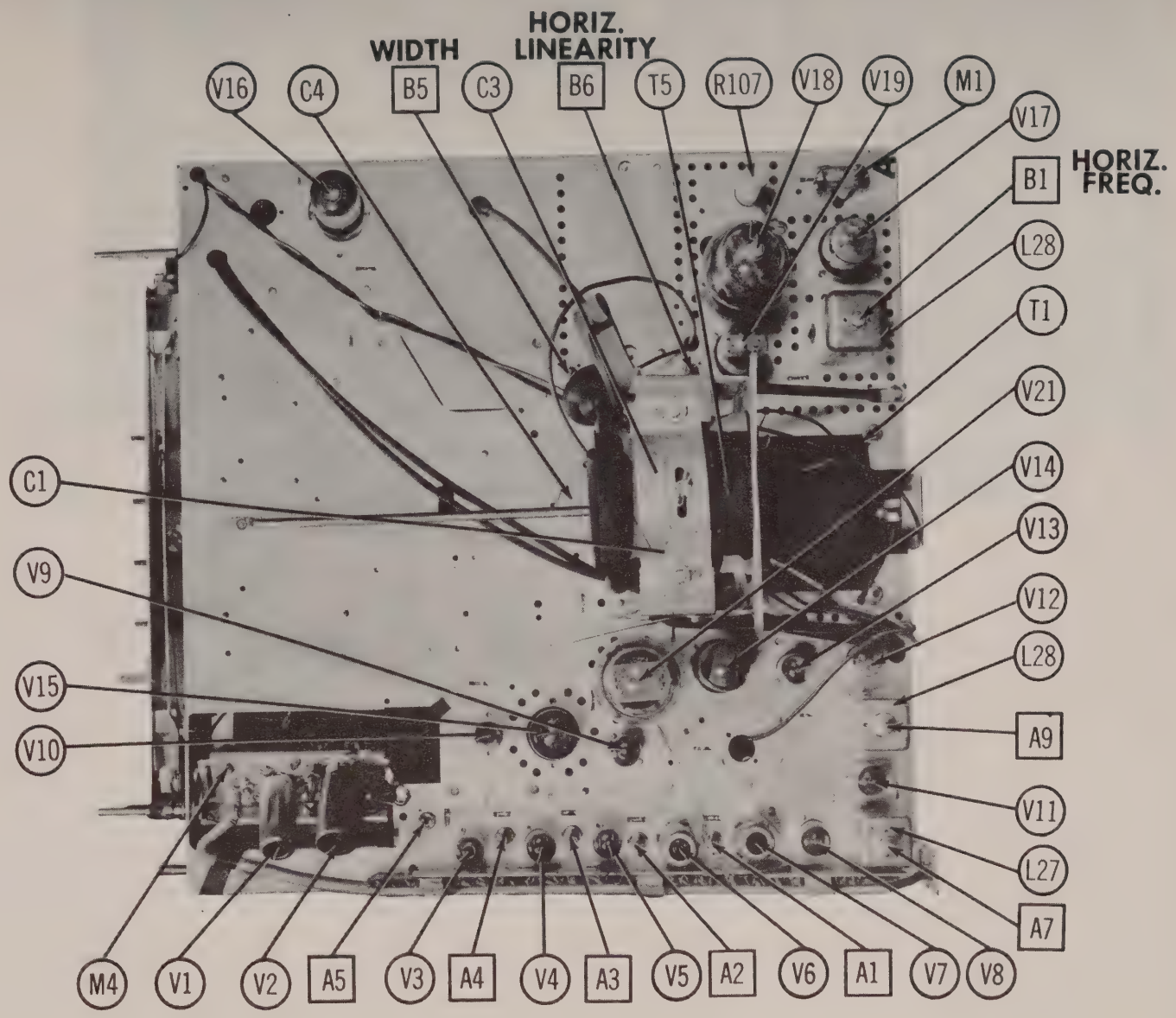
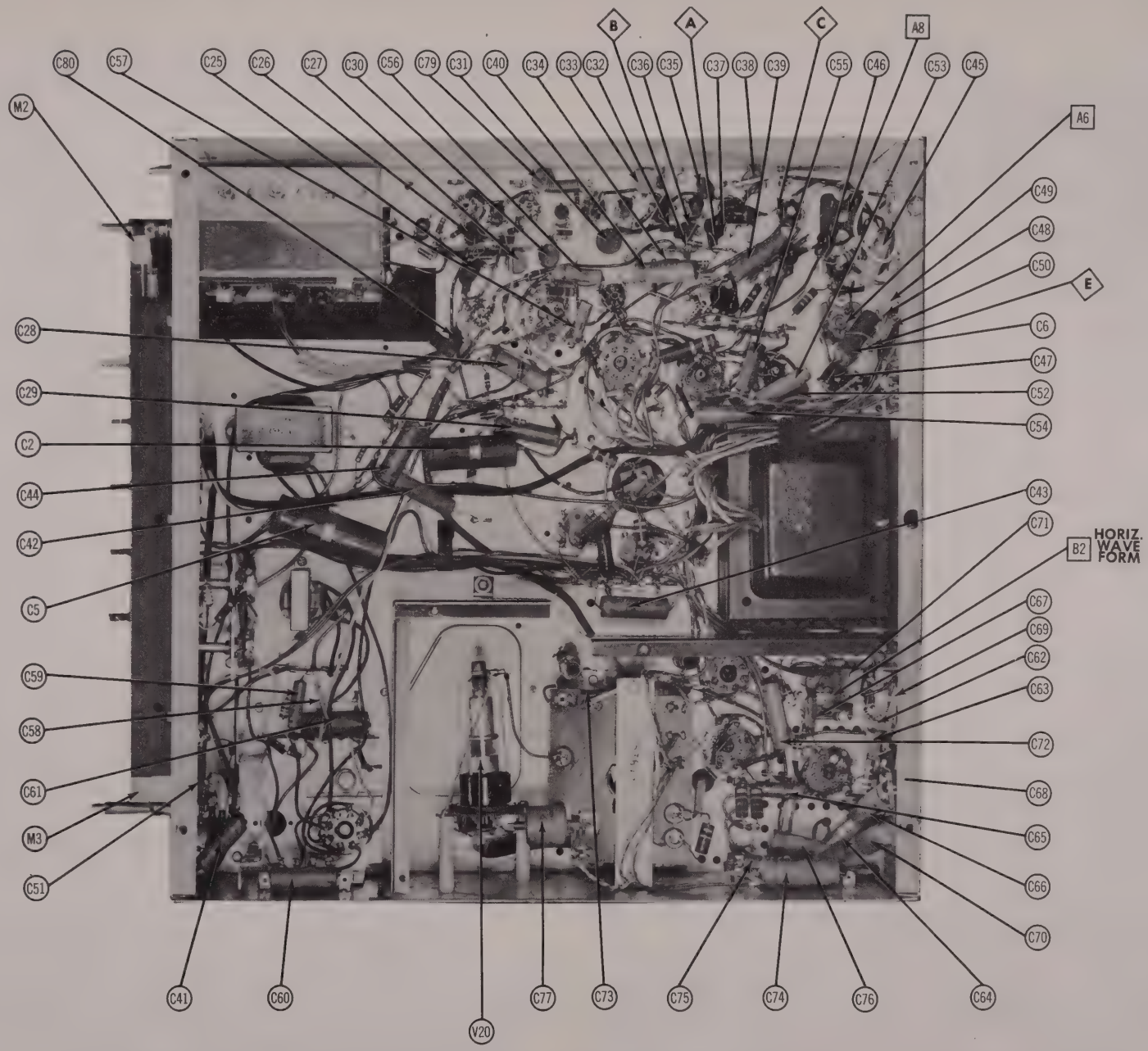

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
125 V LINE
125 V LINE
SOUND IF V11 6AU6
RATIO DET V12 6AL5
AI AMP AGC CLAMPER V13 6AV6
AUDIO OUTPUT V14 6W6GT
1ST VIDEO IF V1 6AU6
2ND VIDEO IF V2 6AU6
3RD VIDEO IF V3 6AU6
4TH VIDEO IF V5 6CB6
VIDEO DET NOISE LIMITER V7 6AL5
VIDEO OUTPUT V8 6CB6
RF AMP V1 6CB6
MIXER V2 12AT7
OSC V3 12AT7
SYNC CLIPPER SYNC AMP V10 6S7GT
VERT OSC VERT OUTPUT V9 6BL7GT
AGC KEYING V12 6AU6
DC REST SYNC SEP V4 6C4
HORIZ OSC V17 6SN7GT
HORIZ AFC V17 6SN7GT
HORIZ OUTPUT V18 6CD6G
HV RECT V20 1B3GT
DAMPER V19 6W4GT
PICTURE TUBE V21 17HP4
SW ON VOLUME CONTROL
DY REST V6 5U4G
TO SPEAKER FIELD
SPEAKER FIELD
HUM BUCK COIL
HUM BALANCE CONTROL
VOLUME CONTROL
TONE CONTROL
BRIGHTNESS CONTROL
CONTRAST CONTROL
FOCUS CONTROL
ION TRAP CENTERING MAGNET
DEFLECTION YOKE
VERT LINEARITY CONTROL
VERT HOLD CONTROL
HEIGHT CONTROL
AGC CONTROL
HORIZ HOLD CONTROL
HORIZ FREQ.
HORIZ WAVE SHAPE
HORIZ LOCK-IN
HORIZ LINEARITY
WIDTH
DO NOT MEASURE
DO NOT MEASURE
A MEASURED WITH VTVM
B MEASURED FROM 125 V LINE
C SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DOTTED W PARTS ARE NOT USED IN ALL MODELS W HICH DOTTED W PARTS ARE USED. PARTS MARKED X ARE BROKEN
WAVE FORMS & VOLTAGES WITH CONTROLS SET AS FOLLOWS: ALL VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements are at 20,000 ohms per volt, AC voltage measured at 1,000 ohms per volt.
2. Fix resistor 1V rectified by a rectifier type as bottom of socket.
3. Measured voltages are from socket pin to chassis negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings
5. All controls set for normal operation. No signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1952
CROSLEY MODEL EU-17COM, TOB, TOM, (Ch. 380, 383), EU-21CDB, CDM, CDN, COBa, COMa (Ch. 381, 384)



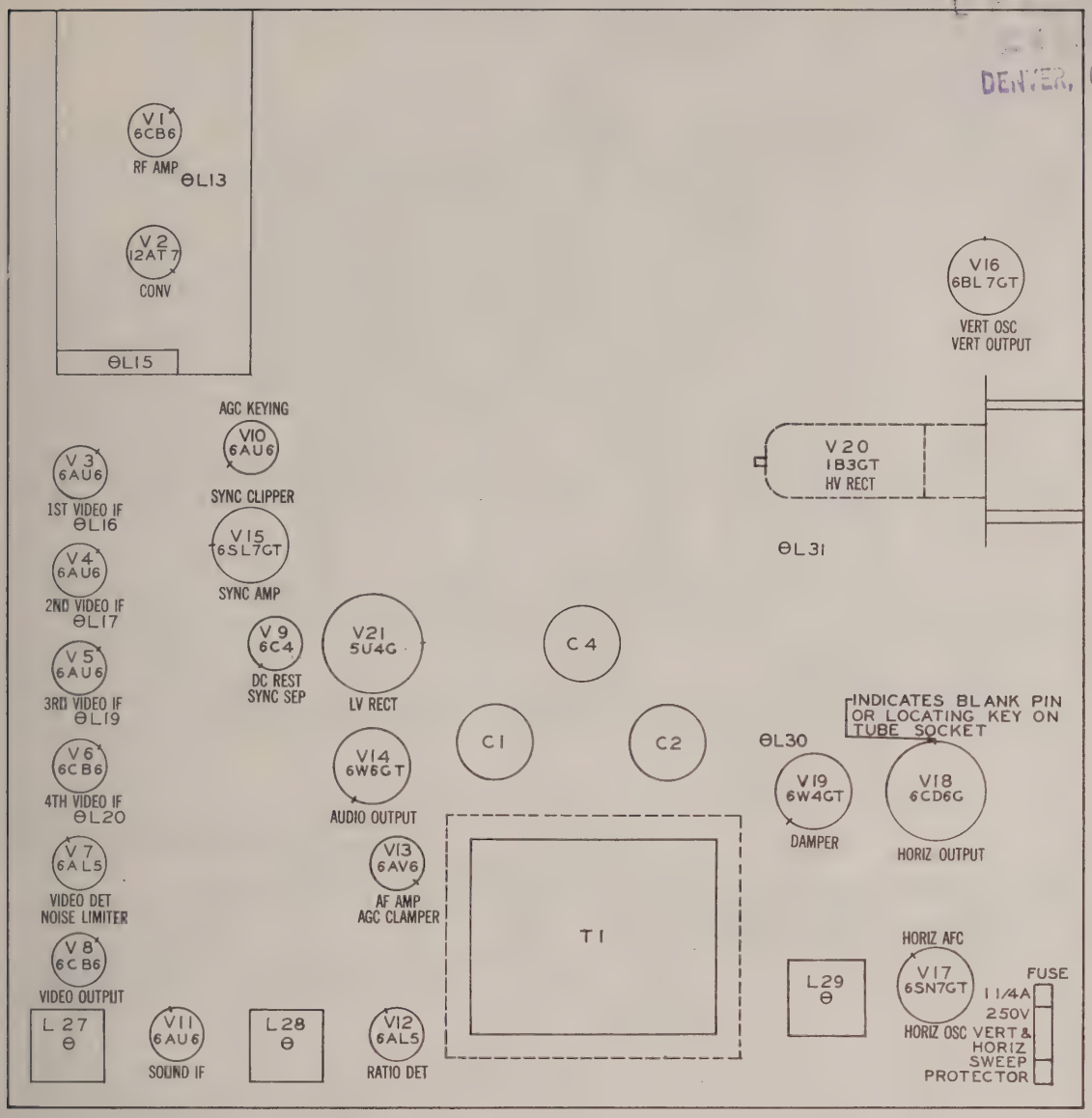
CHASSIS TOP VIEW

SHIP
DENVER, COLORADO



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TOP VIEW

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound-V21

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster-V2, V3, V4, V5, V6, V7, V8, V14
No pic, no sound, has snow-V1, V2, V3
No pic, has sound, has raster-V8, V9, V22
Has pic, no sound-V11, V12, V13, V14
Overloaded picture-V7, V10

SYNC FAILURE
No vert. sync-V15, V16
No horiz. sync-V15, V17
No vert or horiz. sync. -V15

SWEEP FAILURE
No raster, has sound-V17, V18, V19, V20, V22, Fuse (M1)
No vertical deflection-V16
Poor vert. linearity or foldover-V16
Poor horiz. linearity or foldover-V17, V181, V19
Narrow picture-V17, V18, V19, V20, V21
Vert. off freq. -V15, V16
Horiz. off freq. -V15, V17

DENVER, COLORADO

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the RF Amplifier Tube, 6CB6 (V1) to eliminate spurious responses.
Connect the negative lead of a 3.5 volt bias source to the junction R30 and R31 (orange lead on terminal strip near V3 and V4 sockets).
Connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over converter tube (V2). Low side to chassis.	24MC (Unmod)	Tune to point of non-interference near low frequency end of dial.	DC probe to point (A) Common to point (B)	A1	Adjust for maximum deflection. Attenuate generator to maintain not more than 2 volts at VTVM.
2.	"	"	22.2MC	"	"	A2	"
3.	"	"	26.55MC	"	"	A3	"
4.	"	"	22.9MC	"	"	A4	"
5.	"	"	25.5MC	"	"	A5	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to an ungrounded tube shield floating over converter tube (V2). Low side to chassis.	24MC (10MC Swp)	21.4MC 21.9MC 22.9MC 26.4MC 27.6MC	Tune to point of non-interference near low frequency end of dial.	Vert. Amp. to point (C). Low side to chassis.		Check for response curve similar to fig.1. If necessary retouch A1 thru A5 for desired response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from point (D) to chassis. The junction of these two resistors is alignment point (F) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.001MFD	High side to point (C) Low side to chassis.	4.5MC (Unmod)	Point of non-interference near low frequency end of dial	DC probe to point (D) Common to chassis.	A6, A7, A8	Adjust for maximum deflection.
8.	"	"	"	"	DC probe to point (E) Common to point (F)	A9	Adjust for zero reading. A negative and positive reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.001MFD	High side to point (C). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Point of non-interference near low frequency end of dial.	Vert. amp. to point (D). Low side to chassis.	A6, A7 A8	Disconnect stabilizer capacitor C6. Adjust for curve of maximum amplitude and symmetry as in fig. 2.
8.	"	"	"	"	"	Vert. amp. to point (E). Low side to chassis.	A9	Reconnect capacitor C7. Adjust so that 4.5MC occurs at center of crossover lines as in fig. 3. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

The RF portion of this receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

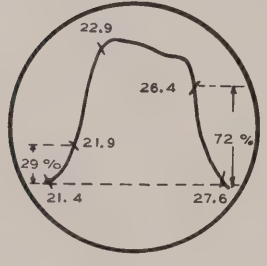


FIG. 1

FIG. 2

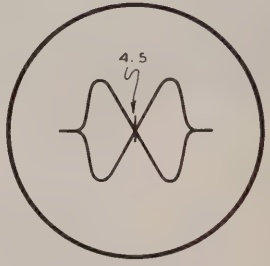
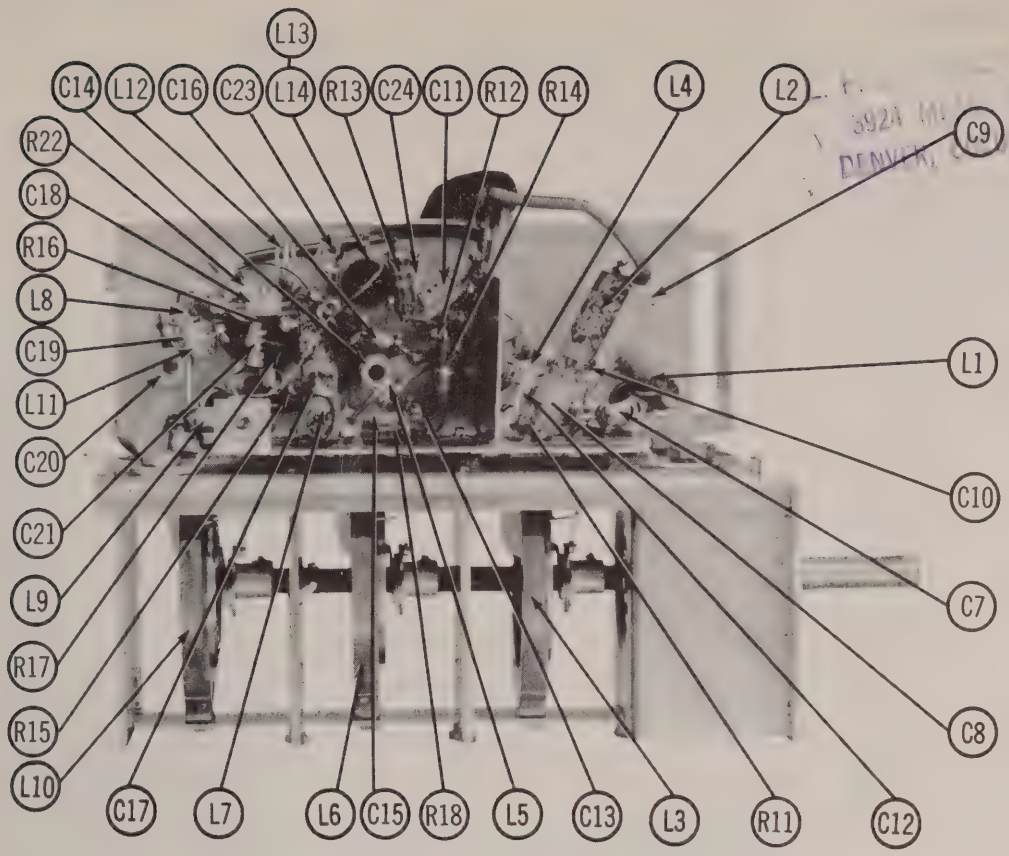
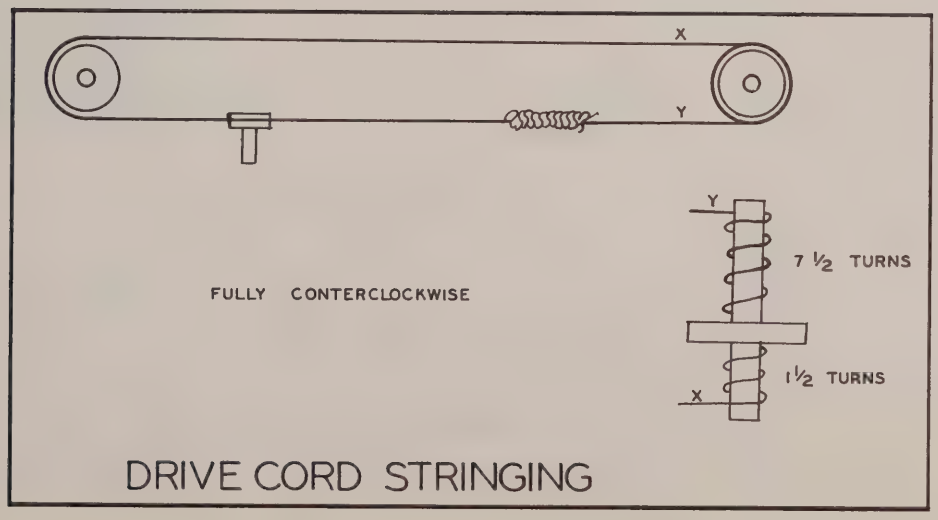


FIG. 3



RF-TUNER

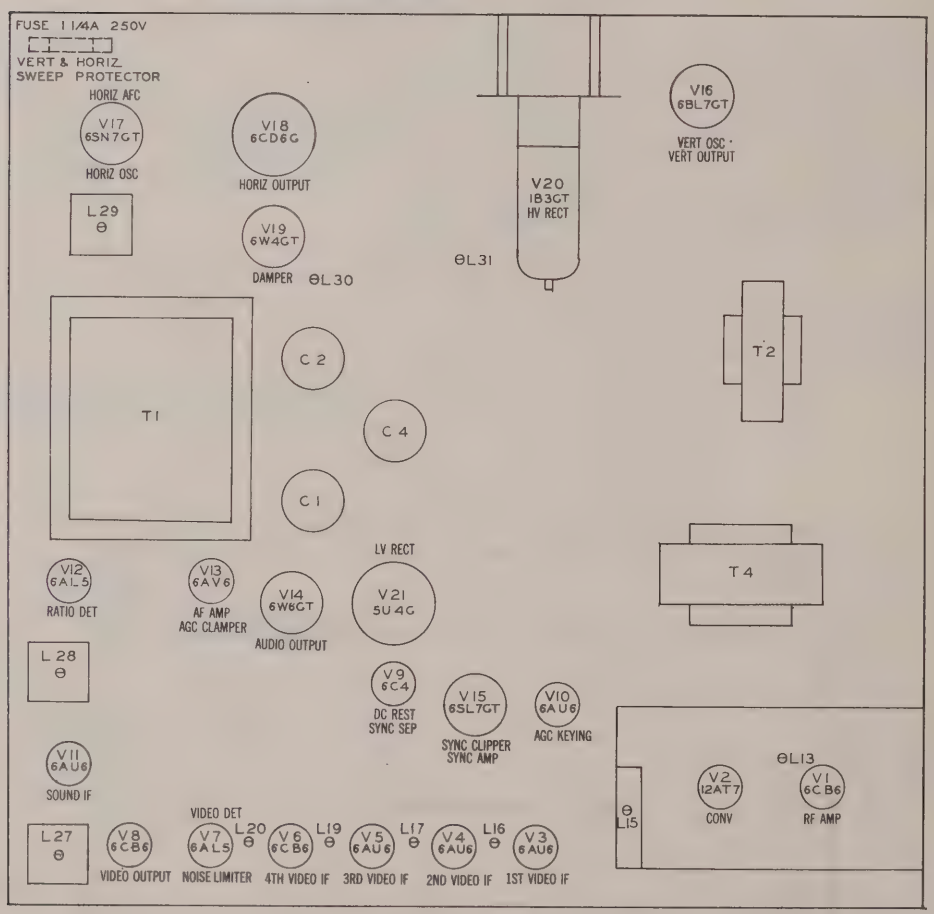


DRIVE CORD STRINGING

RESISTANCE MEASUREMENTS

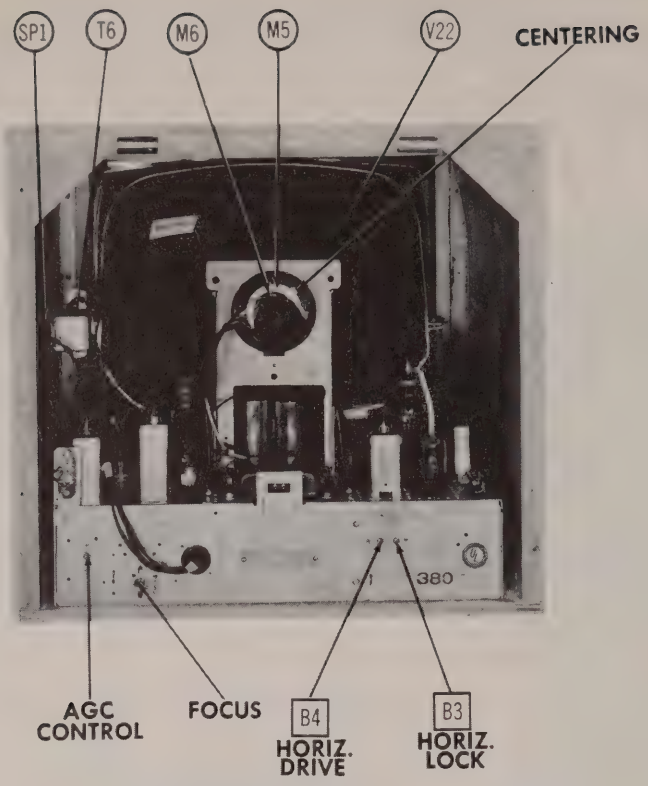
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	600KΩ	82Ω	0Ω	.1Ω	■760Ω	■16KΩ	0Ω		
V 2	12AT7	■5.8KΩ	4.7KΩ	1.2KΩ	0Ω	0Ω	■5.8KΩ	15KΩ	0Ω	.1Ω
V 3	6AU6	18KΩ	0Ω	.1Ω	0Ω	■200Ω	■200Ω	68Ω		
V 4	6AU6	8.2KΩ	0Ω	.1Ω	0Ω	■300Ω	■300Ω	68Ω		
V 5	6AU6	.5Ω	0Ω	.1Ω	0Ω	■400Ω	■400Ω	100Ω		
V 6	6CB6	.5Ω	150Ω	0Ω	.1Ω	■500Ω	■500Ω	0Ω		
V 7	6AL5	400Ω	127Ω	.1Ω	0Ω	4.7KΩ	0Ω	4.7KΩ		
V 8	6CB6	4.7KΩ	250Ω	.1Ω	0Ω	■8KΩ	†82KΩ	250Ω		
V 9	6C4	47KΩ	INF	.1Ω	0Ω	47KΩ	0Ω	370KΩ		
V 10	6AU6	100KΩ	0Ω	.1Ω	0Ω	110KΩ	■0Ω	400Ω		
V 11	6AU6	1.4Ω	0Ω	.1Ω	0Ω	■27KΩ	■27KΩ	220Ω		
V 12	6AL5	INF	INF	.1Ω	0Ω	0Ω	0Ω	18KΩ		
V 13	6AV6	3.9Meg	0Ω	.1Ω	0Ω	600KΩ	600KΩ	†100KΩ		
V 14	6W6GT	INF	■0Ω	†980Ω	†5.2KΩ	■91KΩ	INF	■.1Ω	■390Ω	
V 15	6SL7GT	1 Meg	†18KΩ	0Ω	3.3Meg	†335Ω	6.9KΩ	.1Ω	0Ω	
V 16	6BL7GT	1.9Meg	#1.6Meg	0Ω	1 Meg	#9.1KΩ	1.1KΩ	.1Ω	0Ω	
V 17	6SN7GT	250KΩ	#55KΩ	0Ω	710KΩ	#100KΩ	300KΩ	0Ω	.1Ω	
V 18	6CD6G	INF	.1Ω	0Ω	1 Meg	1 Meg	†11KΩ	0Ω	†11KΩ	Top Cap #41Ω
V 19	6W4GT	INF	INF	150KΩ	INF	†342Ω	1NF	■0Ω	■.1Ω	
V 20	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								Top Cap #15.2KΩ
V 21	5U4G	INF	40KΩ	.1Ω	47Ω	■0Ω	48Ω	■0Ω	40KΩ	
V 22	17HP4	0Ω	320KΩ	Pin 6 300K Ω	Pin 10 †55Ω	Pin 11 70KΩ	Pin 12 .1Ω			

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 8 OF V21
# MEASURED FROM PIN 3 OF V19
■ MEASURED FROM 125 VDC LINE



BOTTOM VIEW

TUBE PLACEMENT CHART



CABINET–REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.
Adjust the contrast control at normal operating position.
Set the horizontal hold control at the center of its range and adjust the horizontal frequency slug (B1) until the picture is in sync.
Connect an oscilloscope through 10MMF to the junction of R95 and R96 on the bottom of L29.
Adjust the horizontal waveform slug (B2) for response as in fig. 4, with the narrow peaks equal, or up to 10% higher than the broad peaks.
Keep the picture in sync, meanwhile, by adjusting the horizontal hold control, B1, or the horizontal lock trimmer (B3).
Adjust B1 until picture is out of sync, then back again until picture is just ready to fall into sync as indicated by the wide vertical or diagonal blanking bar.
Turn the horizontal hold control fully counter clockwise and tune the receiver off station and back again. If more than seven bars are present adjust the horizontal lock trimmer, B3, counter clockwise until 5 to 7 bars appear just before synchronization. If less than 5 bars are present adjust B3 clockwise.
Since adjustment of B3 affects the horizontal frequency, B1 and B3 must be adjusted simultaneously until 5 to 7 bars are present just before sync.
The pull in range of the horizontal hold should then be from 120 to 220 degrees rotation.
Turn the horizontal drive trimmer (B4) as far as possible counter clockwise without the presence of a vertical white line or compression of the center of the picture.
Check to see if the horizontal linearity of the picture changes with a change of the contrast control setting. If it does, adjust B4 slightly clockwise to eliminate this change in linearity.
Adjust the width slug (B5) for a picture slightly wider than necessary to fill the picture mask.
Adjust the horizontal linearity slug, B6, for a picture that is symmetrical from left to right.

AGC ADJUSTMENT

Tune receiver to a weak TV signal and, with contrast control at maximum, adjust the AGC threshold level control to the point where receiver just begins to overload.
If receiver overloads on a strong signal reduce setting of contrast control enough to eliminate overloading.

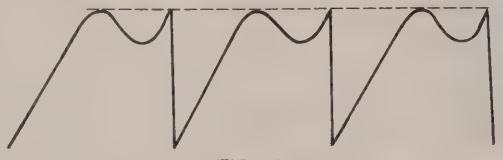
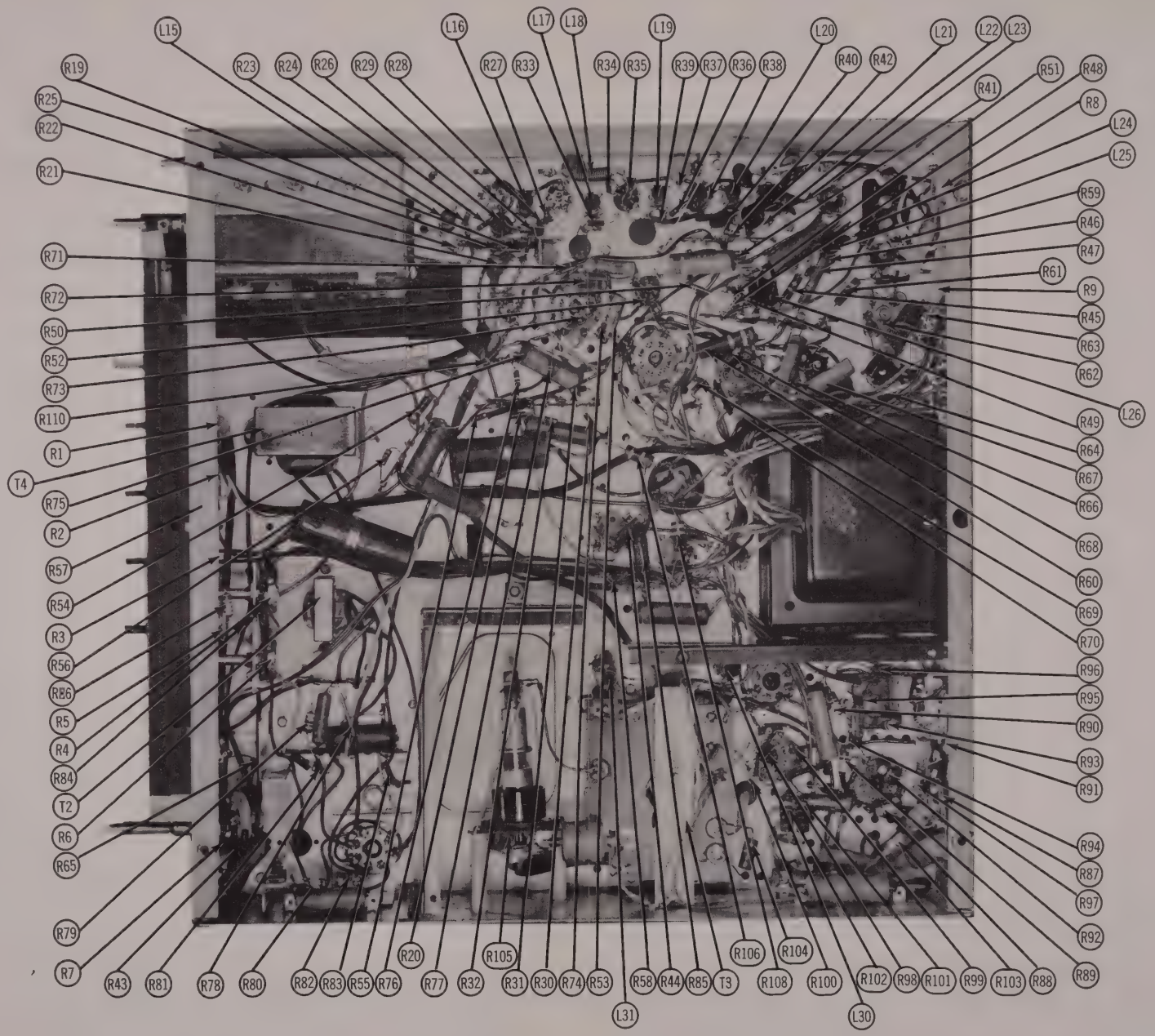


FIG. 4

DISASSEMBLY INSTRUCTIONS

1. Remove 3 push on type control knobs from front panel.
2. Remove 4 wood screws. Lift rear cover. Secure in place.
3. Disconnect speaker, Remove 2 wing nuts. Remove speaker.
4. Disconnect built in antenna.
5. Remove 4 chassis bolts. Remove chassis.

NOTE : FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUT LINED ABOVE.



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6CB6	6CB6	7CM	
V2A	Converter	12AT7	12AT7	9A	
B	Converter	12AV7	12AV7	9A	
V3	1st. Video IF Amp.	6AU6	6AU6	7BK	
V4	2nd. Video IF Amp.	6AU6	6AU6	7BK	
V5	3rd. Video IF Amp.	6AU6	6AU6	7BK	
V6	4th. Video IF Amp.	6CB6	6CB6	7CM	
V7	Video Detector-Noise Limiter	6AL5	6AL5	6BT	
V8A	Video Output	6CB6	6CB6	7CM	
B	Video Output	6AH6	6AH6	7BK	
V9	DC Restorer-Sync Separator	6C4	6C4	6BG	
V10	AGC Keying	6AU6	6AU6	7BK	
V11	Sound IF Amp.	6AU6	6AU6	7BK	
V12	Ratio Detector	6AL5	6AL5	6BT	
V13	AF Amplifier - AGC Clamper	6AV6	6AV6	7BT	
V14	Audio Output	6W6GT	6W6GT	7AC	
V15	Sync Clipper-Sync Amplifier	6SL7GT	6SL7GT	8BD	
V16	Vert. Oscillator-Vert. Output	6BL7GT	6BL7GT	8BD	
V17	Horiz. AFC - Horiz. Oscillator	6SN7GT	6SN7GT	8BD	
V18	Horiz. Out	6CD6G	6CD6G	5BT	
V19	Damper	6W4GT	6W4GT	4CG	
V20	HV Rectifier	1B3GT	1B3GT	3C	
V21	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: SYLVANIA PART No.		RTMA BASE TYPE	NOTES
V22A	17HP4	17HP4		12C	① Circuit changes necessary
B	17HP4A			12C	
C	21FP4A	21FP4A		12C	
		21FP4	①	12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CROSLEY PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	475	153468	AFH2-72		UP4450			FP262	TVL-2830
B	▲40	475						TC1505		TVA-1132
C2	500	10	153469	PRS12/500		BRH125A		FP262		TVL-2830
C3A	▲40	475	148429	AFH3-192		UPT303		TC3501		TVA-1310
B	■40	250								
C	▲100	50						FP396.2		TVL-3807
C4A	▲10	475	153532							
B	■4	350								
C	▲40	250								
C5	40	300	153470	PRS450/40		BR4035		TC78		TVA-1611
C6	10	25	149211	PRS25/10		BR102A		TC22		TVA-1204
C7	27		137727-49							
C8	27		137727-47							
C9	1500		137727-113	SI1500	D6-152	TM5D15	GP2L-152	UC-5215		5HK-D15
C10	.8-5.5		148895-1							
C11	1500		137727-113	SI1500	D6-152	TM5D15	GP2L-152	UC-5215		5HK-D15
C12	5		137398-8	SI5NP0	TCZ-4.7		NP0K-050	ZT-555		5TCCB-V47
C13	1500		137727-113	SI1500	D6-152	TM5D15	GP2L-152	UC-5215		5HK-D15
C14	.8-5.5		148895-1							
C15	5000		137727-48	SI5000	D6-502	TM5D5	GP2-333-502	UC-525		5HK-D5
C16	8		137727-106				N330K-060 N P0K-3R3	ZT-5533		5TCCB-V33
C17	3.3		137395-5	SI3.3NP0	TCZ-3.3		NP0K-010			5TCCB-V1
C18	1		137398-2		TCZ-1		N330K-060			
C19	8		137727-106							
C20	.8-5.5		148895-1				N330K-060			
C21	8		137727-106				GP2L-152	UC-5215		5HK-D15
C22	1500		137727-113	SI1500	D6-152	TM5D15	N080-331-100			
C23	10		137727-44	SI10N080						
C24	1500		137727-113	SI1500	D6-152	TM5D15	GP2L-152	UC-5215		5HK-D15
C25A	4000		144675-6	BPD-2X004	D6-402	TM5DD4	822-004	DCD-524		5HK-2D4
B	4000				D6-402					
C26	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525		5HK-D5
C27	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525		5HK-D5
C28	.1	200	39001-19	P288-1	DF-104	PT2P1		PT401		2TM-P1
C29	.05	200	39001-17	P288-05	DF-503	PT2S5		PT415		2TM-S5
C30	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525		5HK-D5
C31 A	4000		144675-6	BPD-2X004	D6-402	TM5DD4	822-004	DCD-524		5HK-2D4
B	4000				D6-402					
C32	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525		5HK-D5
C33	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525		5HK-D5
C34	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525		5HK-D5
C35	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525		5HK-D5
C36	5000		144675-2	BPD-005	DD-502	TM5D5	GP1K-050	ZT-555		5GA-V5
C37	5		137727-103	SI5	TCZ-4.7	5W5V5		DC-525		5HK-D5
C38	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525		4TM-S5
C39	.05	400	39001-17	P488-05	DF-503	PTE4S5		PT415		
C40	.08	400	39001-85							
C41	.01	600	39001-13	P688-01	D6-103	PTE6S1	GP2-333-103	PT611		6TM-S1
C42	.05	200	39001-17	P288-05	DF-503	PJ2S5		PT415		2TM-S5
C43	.03	600	39001-82	P688-03		PTE6S3		PT613		6TM-S3
C44	.03	600	39001-82	P688-03		PTE6S3		PT613		6TM-S3
C45	.02	400	39001-80	P488-02	DF-203	PTE4S2		PT412		4TM-S2
C46	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525		5HK-D5
C47	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525		5HK-D5
C48	1000		137727-110	SI1000	D6-102	TM5D1	GP2L-102	UC-521		5HK-D1
C49	.005	600	39001-11	P688-005	D6-502	PTE6D5	GP2-333-502	PT625		6TM-D5
C50	.01	400	39001-13	P688-01	D6-103	PTE4S1	GP2-333-103	PT411		4TM-S1
C51	.01	400	39001-13	P688-01	D6-103	PTE4S1	GP2-333-103	PT411		4TM-S1

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CROSLEY PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C52	.01	400	39001-13	P688-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C53	.015	400		P488-015		PTE4S15		TP415	6TM-S15	Note 2
C54	.05	400	39001-17	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C55	.01	400	39001-13	P488-01	D6-103	PT4S1	GP2-333-103	PT411	4TM-S1	
C56	.01	400	39477-41	P488-01	D6-103	PT4S1	GP2-333-103	PT411	4TM-S1	
C57	.001	400	39478-35	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C58A	.002			P688-002		PTE6D2		PT622		
B	.005		♦149878	P688-005	♦PC-100	PTE6D5	♦1405-01	PT625	♦101C1	
C	.005			P688-005		PTE6D5		PT625		
C59	.0047	600	39478-39	P688-0047		PTE6D47		PT6247	6TM-D47	
C60	.08	400	146434-11							
C61	.1	600	39001-19	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C62	180	500	137498-24	1469-0003		5R5T2		MCB237	MB-32	
C63	.0022	600	39477-37	P688-0022	D6-222	PTE6P22	GP2-333-222	PT6222	6TM-D22	
C64	.05	600	39001-17	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C65	.02	200	39001-80	P288-02	DF-203	PTE4S2		PT412	2TM-S2	
C66	.25	200	39001-87	P488-25		PTE4P25		PT4025	2TM-P25	
C67	180	500	137498-65							
C68	.01	400	148813-2	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C69	1300	500	137498-53							
C70	.06	600	39001-84	684-06		PTE6S6		PT615	6TM-S6	
C71	820	500	137498-56							
C72	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C73	.0033	600	39478-114	P688-0033	D6-332	PTE6D33	GP2-333-332	PT6233	6TM-D3	
C74	.15	400	146434-10	P488-15		PTE4P15		TP417	4TM-P15	
C75	.1	600	146434-3	P688-1		PTE6P1		PT601	6TM-P1	
C76	.2	400	149488-2	P488-22		PTE4P22		TP429	4TM-P22	
C77	500	20000	151109	HV20C	TV3-502	MMC-20TS	413-501		20DK-T5	
C78	500	20000	151109	HV20C	TV3-502	MMC-20TS	413-501		20DK-T5	Note 1
C79	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C80	5000		144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	

Note 1. Used in Ch. 384 only
Note 2. Some Models use .01MFD in this application (Part #39001-13)
♦ Items C58A, C58B, C58C, R78A, R78B, R78C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1.5Meg	½	B-148952	Q11-138	AG-88-S	AB-75	U-155	Tone
B	Shaft		Not Req.	Not Req.	RS-2	AK-4	Not Req.	Attach to R1A
R2A	40KΩ	½	B-148966	Q11-123	AG-43-S	AB-31	U-35	Brightness
B	Shaft		Not Req.	Not Req.	RS-2	AK-4	Not Req.	Attach to R2A
R3A	50KΩ	½	B-148953	Q11-123	AG-44-S	AB-31	U-35	Horiz. Hold
B	Shaft		Not Req.	Not Req.	RS-2	AK-4	Not Req.	Attach to R3A
R4A	3000Ω	½	B-151634	Q11-112	AG-15-S	AB-8	U-8	Vert. Linearity
B	Shaft		Not Req.	Not Req.	RS-2	AK-4	Not Req.	Attach to R4A
R5A	1.5Meg	½	B-148952	Q11-138	AG-83-S	AB-75	U-155	Vert. Hold
B	Shaft		Not Req.	Not Req.	RS-2	AK-4	Not Req.	Attach to R5A
R6A	1.5Meg	½	B-152129		AG-83-S	AB-75	U-155	Height
B	Shaft		Not Req.	Not Req.	RS-2	AK-4	Not Req.	Attach to R6A
R7A	1500Ω	½	C-153348	QJ-368*	5BBT-719-S	RTV-364	UF-152L	Contrast-Panel
B	1 Meg	½					UR16T254	Volume-Tap ④ 250KΩ-Rear
C	Switch						US-27	Attach to R7A
R8	1000Ω	1	B-148861					AGC-Wire Wound
R9A	1.5Meg	½	B-146799	Q11-138	AG-83-S	AB-75	U-155	Focus
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R9A
R10	6Ω							Hum Balance-Note

Note Not used in all models.
♦ CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B17-109 & P1-128 (Panel) B13-137 & R1- 216 (Rear) & SWITCH 76-2.

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R11	82Ω	½	39374-12	BTS-82	
R12	15KΩ	½	39374-39		
R13	5600Ω	½	39374-34		
R14	560Ω	½	39374-22	BTS-560	
R15	4700Ω	½	39374-33	BTS-4700	
R16	1200Ω	½	39373-26	BTS-1200	
R17	15KΩ	½	39374-39		
R18	5600Ω	½	39374-34		
R19	100Ω	½	39374-13	BTS-100	
R20	1000Ω	½	39374-25	BTS-1000	
R21	100Ω	1	39374-101	BTA-100	
R22	560Ω	2	39374-22	BTS-560	
R23	15KΩ-5%	½	39375-77		
R24	68Ω	½	39374-11		
R25	10KΩ	½	39374-37		
R26	100Ω	½	39374-13	BTS-100	
R27	8200Ω-5%	½	39375-71		
R28	68Ω	½	39374-11		
R29	100Ω	½	39374-13	BTS-100	
R30	8200Ω-5%	½	39375-71	BTS-8200-5%	
R31	100KΩ-5%	½	39375-97	BTS-100K-5%	
R32	910KΩ-5%	½	39375-120	BTS-910K-5%	
R33	100Ω	½	39374-13	BTS-100	
R34	10KΩ-5%	½	39375-73		
R35	100Ω	½	39374-13	BTS-100	
R36	6800Ω-5%	½	39375-69		
R37	150Ω	½	39374-15	BTS-150	
R38	12KΩ-5%	½	39375-75		
R39	100Ω	½	39374-13	BTS-100	
R40	100Ω	½	39374-13	BTS-100	
R41	4700Ω-5%	½	39374-65	BTS-4700-5%	
R42	100KΩ	½	39374-49	BTS-100K	
R43	47Ω	½	39374-9		
R44	82KΩ	2	39374-224	BTB-82K	
R45	10KΩ-5%	1	39375-221	BTA-10K-5%	
R46	3900Ω-5%	1	39375-211	BTA-3900-5%	
R47	6800Ω-5%	2	39375-365	BTB-6800-5%	
R48	4700Ω	½	39374-33	BTS-4700	Note 1
R49	100KΩ	½	39374-51	BTS-100K	
R50	150KΩ	½	39374-51	BTS-150K	
R51	220KΩ	½	39374-53	BTS-220K	
R52	1 Meg	½	39374-61	BTS-1 Meg	
R53	47KΩ	½	39374-45	BTS-47K	
R54	150KΩ	½	39374-51	BTS-150K	Note 2
R55	1.5Meg-5%	½	39375-125	BTS-1.5Meg-5%	
R56	47KΩ	½	39374-45	BTS-47K	
R57	12KΩ	½	39374-38	BTS-12K	
R58	27KΩ	½	39374-42	BTS-27K	
R59	220Ω	½	39374-17	BTS-220	
R60	390Ω	2	39374-196	BTB-390	
R61	27KΩ	1	39374-128	BTA-27K	
R62	22Ω	½	39374-5		
R63	27KΩ	½	39374-42	BTS-27K	
R64	18KΩ	½	39374-40	BTS-18K	
R65	47KΩ	½	39374-45	BTS-47K	
R66	3.9Meg	½	39374-75	BTS-3.9Meg	
R67	100KΩ	½	39374-49	BTS-100K	
R68	100KΩ-5%	½	39375-97	BTS-100K-5%	
R69	1 Meg-5%	½	39375-121	BTS-1 Meg-5%	
R70	4700Ω	½	39374-33	BTS-4700	
R71	1 Meg	½	39374-61	BTS-1 Meg	
R72	56KΩ	1	39374-134	BTA-56K	
R73	27KΩ	1	39374-128	BTA-27K	Note 1
R74	3.3Meg	½	39374-73	BTS-3.3Meg	
R75	2200Ω	½		BTS-2200	Note 3
R76	4700Ω	½	39374-33	BTS-4700	Note 4
R77	18KΩ	½	39374-40	BTS-18K	Note 4
R78A	22KΩ	½		BTS-22K	
B	8200Ω	½	♦149878	BTS-8200	
C	8200Ω	½		BTS-8200	
R79	1.2Meg	½	39374-63	BTS-1.2Meg	
R80	27KΩ	½	39374-42	BTS-27K	
R81	1 Meg	½	39374-61	BTS-1 Meg	
R82	5600Ω	½	39374-34	BTS-5600	
R83	1 Meg	½	39374-61	BTS-1Meg	

RESISTORS (CONT.)

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R84	820Ω	1	39374-112	BTA-820	
R85	8200Ω	5	138201-10	1 3/4A-8000	
R86	68KΩ	½	39374-47	BTS-68K	
R87	100KΩ	1	39374-137	BTA-100K	
R88	820KΩ	½	39374-60	BTS-820K	
R89	150KΩ	½	39374-51	BTS-150K	
R90	150KΩ	½	39374-51	BTS-150K	
R91	8200Ω	½	39374-36	BTS-8200	
R92	2.7Meg	½	39374-71	BTS-2.7Meg	
R93	150KΩ	½	39374-51	BTS-150K	
R94	100KΩ-5%	½	39375-97	BTS-100K-5%	
R95	10KΩ	½	39374-37	BTS-10K	
R96	22KΩ	½	39374-41	BTS-22K	
R97	47KΩ	1	39374-133	BTA-47K	
R98	1 Meg	½	39374-61	BTS-1 Meg	
R99	100Ω	½	39374-13		
R100	100Ω	2	39373-13		
R101	22KΩ	2	39374-217	BTB-22K	
R102	22KΩ	2	39374-217	BTB-22K	
R103	8200Ω	½	39374-36	BTS-8200	
R104	15KΩ	2	39374-215	BTB-15K	
R105	1 Meg	1	160324-54		
R106	27Ω	2	39374-182		
R107A	250Ω	5	153494-1	1 3/4A-300	
B	30Ω	5			
R108	470Ω	2	39374-197	BTB-470	
R109	150KΩ	½	39374-51	BTS-150K	Note 5
R110	1Ω	1	39303-8		

Note 1 Some models use a 15KΩ resistor in this application.
Note 2 Some models use a 120KΩ resistor in this application.
Note 3 Some models use a 2700Ω resistor in this application.
Note 4 Not used in all models.
Note 5 Used only in chassis 381 & 384.
♦ Items R78A, R78B, R78C, C58A, C58B, C58C are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: CROSLEY PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC ④ 1.88A	680VCT .200ADC	5VAC ④ 3A	6.3VAC ④ 2.2A SEC. 4 6.3VAC ④ 9A	153526		P-8169 ①	P-3070	TP-356

① Parallel the two large 6.3Volt windings and use for Sec. 4.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: CROSLEY PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	180Ω	700Ω	B-146842-6					Vert. Osc. Trans.
T3	32Ω	185Ω	153619	A-8130 - ① ② ③	HVO-7 ① - ④ ⑤	TFB-5① - ⑤ ⑥	D-14 ① ③ ⑦	Horiz. Output Trans.
		SEC. 2 7Ω tap ④ 4.4Ω						
		SEC. 3 1Ω						
		SEC. 4 0Ω						
T4	915Ω tap ⑧ 15Ω		B-153467	A-8123	A-3037	TSO-9 ⑧	A-102K	Vert. Output Trans.
T5A	14Ω		153614	DY-8	MDF-70 ⑨	TY-2	Y-12 ⑨	Horiz. Deflection Coils
B	57Ω							Vert. Deflection Coils

① Remount high voltage capacitors
② Use with width coil WC-5
③ Drill new mtg. holes
④ Use with width coil MWC-1
⑤ Drill one new mtg. hole
⑥ Use with width coil (with AGC winding) with approx. range of 4-29 Millihenries
⑦ Use with width coil WC-11
⑧ Tie blue & yellow leads together
⑨ Alter Vert. deflection network

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: CROSLEY PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T6	4.1KΩ	3.7Ω	455Ω	.62Ω	B-153317 153162 ① 153360 ①	A-3849	A-3019	RO-303	S-5X	① Alternate audio output trans.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	NOTES
SP1	5 1/4"	55 Ω	3.7Ω	152031-2 153410-1 ① 138762-5 ②		52R556	① Alternate 5 1/4" Speaker. ② Alternate 10" Speaker.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
L1	Ant. Coil	.59Ω		148936-2		CLA	.82 Microhenry
L2	RF Choke	6.1Ω		148936-3		CL-1	8.2 Microhenries
L3	Ant. Coil	0Ω		151347			Includes L6 and L10
L4	Ant. Coil End Inductor	0Ω		149071			
L5	RF Coil End Inductor	0Ω		149070			
L6	RF Coil	0Ω					Part of L3
L7	RF Choke	6.1Ω		148936-3		CL-1	8.2 Microhenries
L8	Osc. Coupling Coil	0Ω		149086			
L9	Osc. Coil Shunt	0Ω		149062			

PARTS LIST CONTINUED ON PAGE 15

PARTS LIST AND DESCRIPTIONS (Continued)

RF-IF COILS (CONT.)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	CROSLEY PART No.	MERIT PART No.	IRC PART No.	
L10	Osc. Coil	0Ω					Part of L3
L11	Osc. Coil End Inductor	0Ω		149069			
L12	RF Choke	0Ω		149072			
L13	Conv. Plate	.2Ω		152048			
L14	Video IF Coupling	.1Ω	.1Ω				Part of L13
L15	1st. Video IF	.3Ω		146763	TV-102		Less core, part #160426
L16	2nd. Video IF	.5Ω	.5Ω	147974			Less core, part #160426
L17	3rd. Video IF	.4Ω	.5Ω	152000			Less core, part #160426
L18	Fil. Choke	0Ω		143934			
L19	4th. Video IF	.5Ω	.5Ω	147974			Less core, part #160426
L20	5th. Video IF	.8Ω	.7Ω	148983			Less core, part #160426
L21	Series Peaking Coil	18.5Ω		152006	TV-184 *		Wound on 10KΩ resistor, 140 Microhenries
L22	Shunt Peaking Coil	22Ω		152005			635 Microhenries
L23	Series Peaking Coil	3.6Ω		152641	TV-180		35.6 Microhenries
L24	Series Peaking Coil	9Ω		152007	TV-184‡		Wound on 4.7KΩ resistor, 140 Microhenries
L25	Shunt Peaking Coil	16Ω		151999	TV-188		445 Microhenries
L26	Series Peaking Coil	9Ω		152007	TV-184 ‡		Wound on 4.7KΩ resistor, 140 Microhenries
L27	Sound IF	2.5Ω	1.4Ω	153665			
L28	Ratio Det.	4.2Ω	.2Ω CT	150394			Tertiary Winding - .3Ω
L29	Horiz. Osc.	150Ω tap @ 40Ω		146698			Wave Form Winding 35Ω
L30	Horiz. Lin.	9Ω		152056	MWC-2		Less core, part #39012-102
L31	Width Coil	3Ω		151757	MWC-2		Less core, Part #39012-103

‡ Parallel with 4.7KΩ resistor
* Parallel with 10KΩ resistor

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			CROSLEY PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	MDV	1/4A 250V	150431		315.250 (3AG-Slo-Blo-P/T)		MDV-1/4	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					CROSLEY PART No.		
M2	Bayonet	6-8	.15	Brown	138437-1		Type #47
M3	Bayonet	6-8	.15	Brown	138437-1		Type #47

MISCELLANEOUS

ITEM No.	PART NAME	CROSLEY PART No.	NOTES
M4	RF Tuner	152132	Complete
M5	Centering Magnet		Mounted on back cover of deflection yoke
M6	Ion Trap	151064-2	
B3, B1	Trimmer	152150	Dual Horiz. Lock (10-160MMF)-Horiz. Drive (30-240MMF)
	Knob	151733-5	Off/on Volume
	Knob	151731-5	Contrast Models EU-17TOB, EU-21CDN,
	Knob	151732-5	Tuning EU-21CDB & EU-21COBa
	Knob	151733-1	Off/on Volume
	Knob	151731-1	Contrast Models EU-17COM, EU-17TOM,
	Knob	151732-1	Tuning EU-21CDM, EU-21COMa
	Back Cover Assy.	153684	Models EU-17TOM & EU-17TOB
	Back Cover Assy.	153730	Model EU-17COM
	Back Cover Assy.	153811	Model EU-21CDN
	Back Cover Assy.	153816	Models EU-21CDM & EU-21COB
	Back Cover Assy.	153927	Models EU-21COMa & EU-21COBa
	Escutcheon Dial	151453-1	Models EU-17COM & EU-17TOM
	Escutcheon Dial	153735-1	Models EU-17TOB, EU-21CDN, EU-21CDB & EU-21COBa
	Escutcheon Dial	153735-2	Models EU-21CDM & EU-21COMa
	Mask	153463-1	Model EU-17COM
	Mask	153463	Models EU-17TOM & EU-17TOB
	Mask	153970	Model EU-21CDN
	Mask	153971	Models EU-21CDM & EU-21CDB
	Mask	153633	Models EU-21COMa & EU-21COBa
	Safety Glass	153635	Models EU-17COM, EU-17TOM & EU-17TOB
	Safety Glass	153961-2	Models EU-21CDN, EU-21COMa & EU-21COBa
	Safety Glass	153961 -1	Models EU-21CDM & EU-21CDB
	Cabinet	153446-1	Console (Mahogany) Model EU-17COM
	Cabinet	153471-1	Table (Mahogany) Model EU-17TOM
	Cabinet	153471-2	Table (Blond) Model EU-17TOB
	Cabinet	153813	Console (Maple) Model EU-21CDN
	Cabinet	153748-1	Console (Mahogany) Model EU-21CDM
	Cabinet	153748-2	Console (Blond) Model EU-21CDB
	Cabinet	153958-1	Console (Mahogany) Model EU-21COMa
	Cabinet	153958-2	Console (Blond) Model EU-21COBa
	Doors	153991	Pair (Maple) Model EU-21CDN
	Doors	153817	Pair (Mahogany) Model EU-21CDM
	Doors	154023	Pair (Blond) Model EU-21CDB

PHOTOFACT* Folder

*TRADE MARK

CROYDON MODELS
C17FTM, C21FCM, C21FTM

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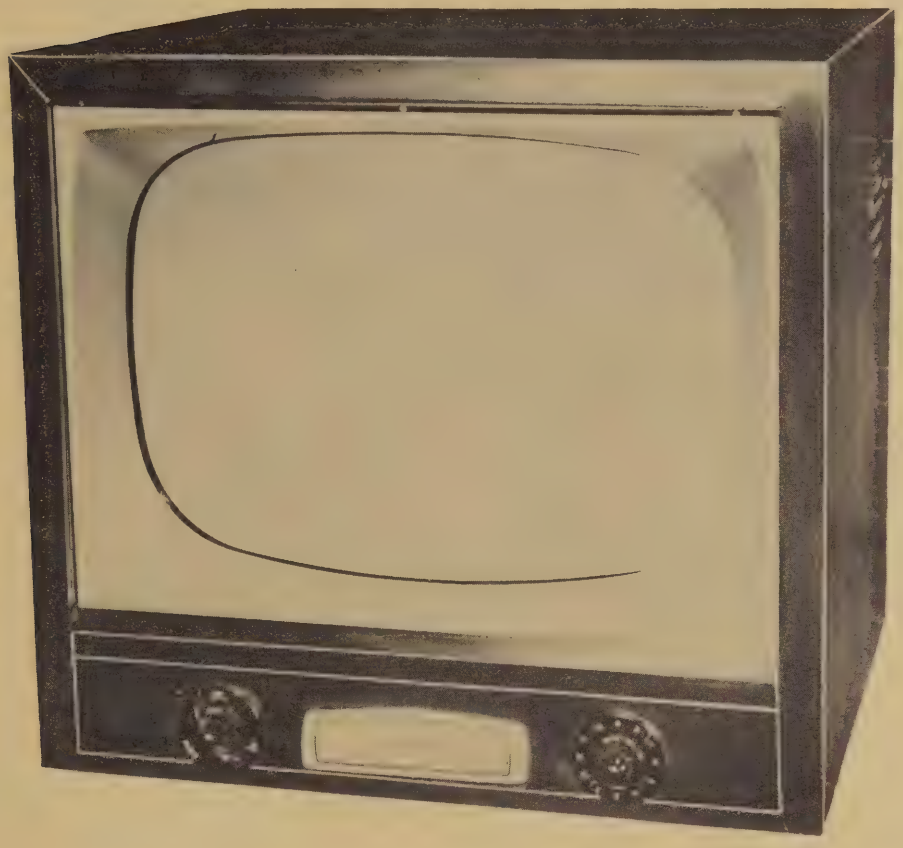

MODEL C21FTM

CROYDON MODELS
C17FTM, C21FCM, C21FTM

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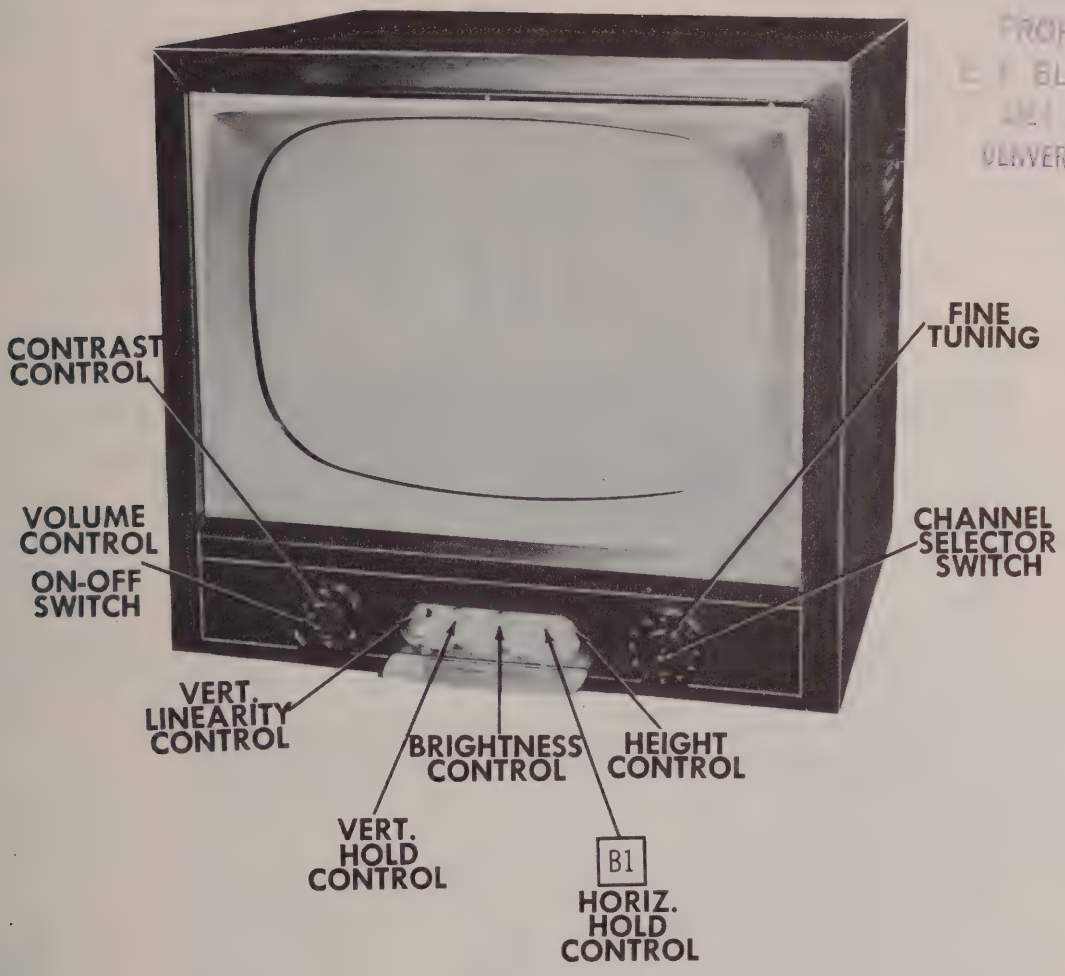

CROYDON MODELS
C17FTM, C21FCM, C21FTM

CROYDON C21FTM

TRADE NAME	Croydon Model C17FTM, C21FCM, C21FTM
MANUFACTURER	J.H. Keeney & Co. Inc., 2600 W. 50 th. St. Chicago 32, Ill.
TYPE SET	Television Receiver
TUBES	Eighteen

POWER SUPPLY 110-120 Volts AC -60 Cycle RATING 1.72 Amp. @ 117 Volts AC
TUNING RANGE—CHANNELS 2 thru 13

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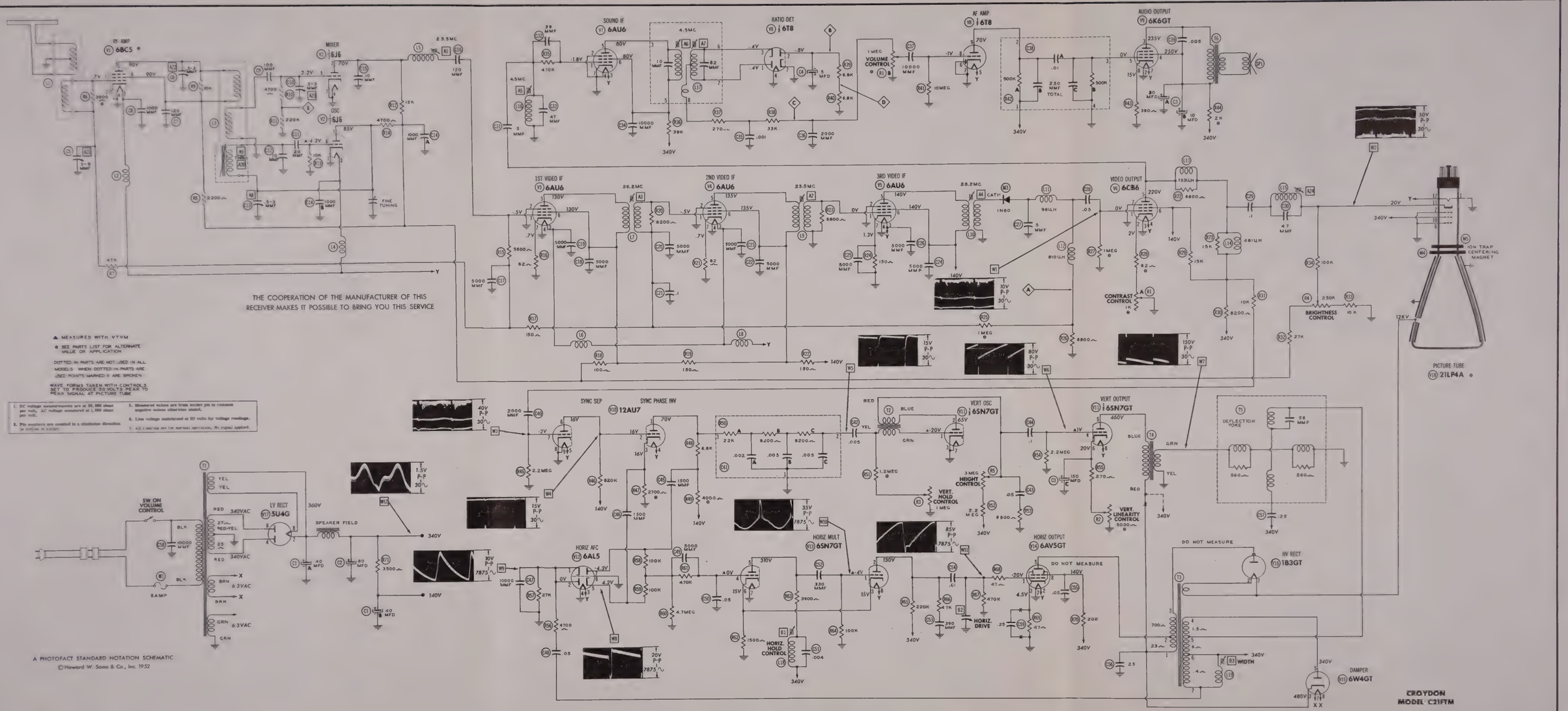

CROYDON MODELS
C17FTM, C21FCM, C21FTM

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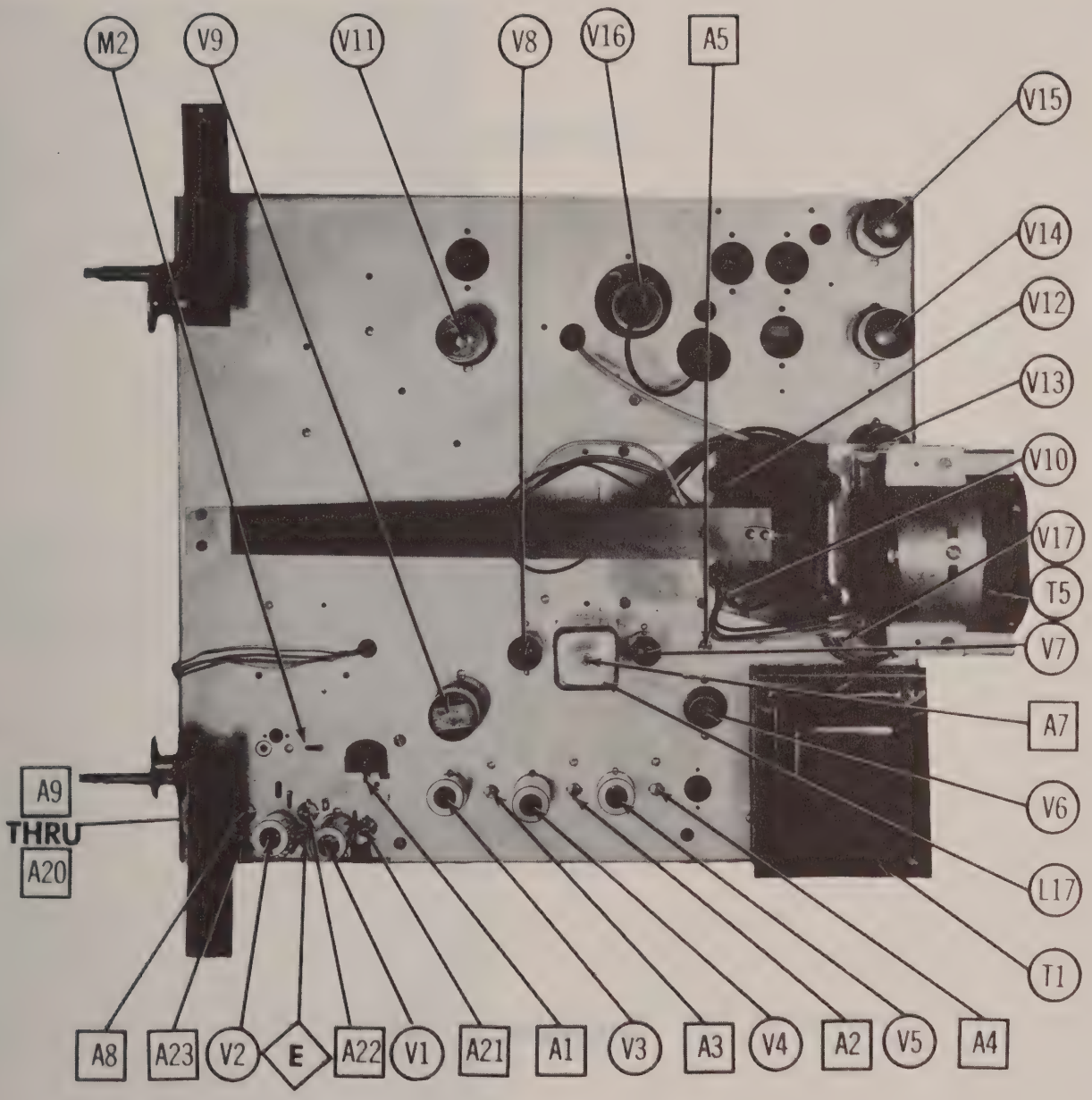
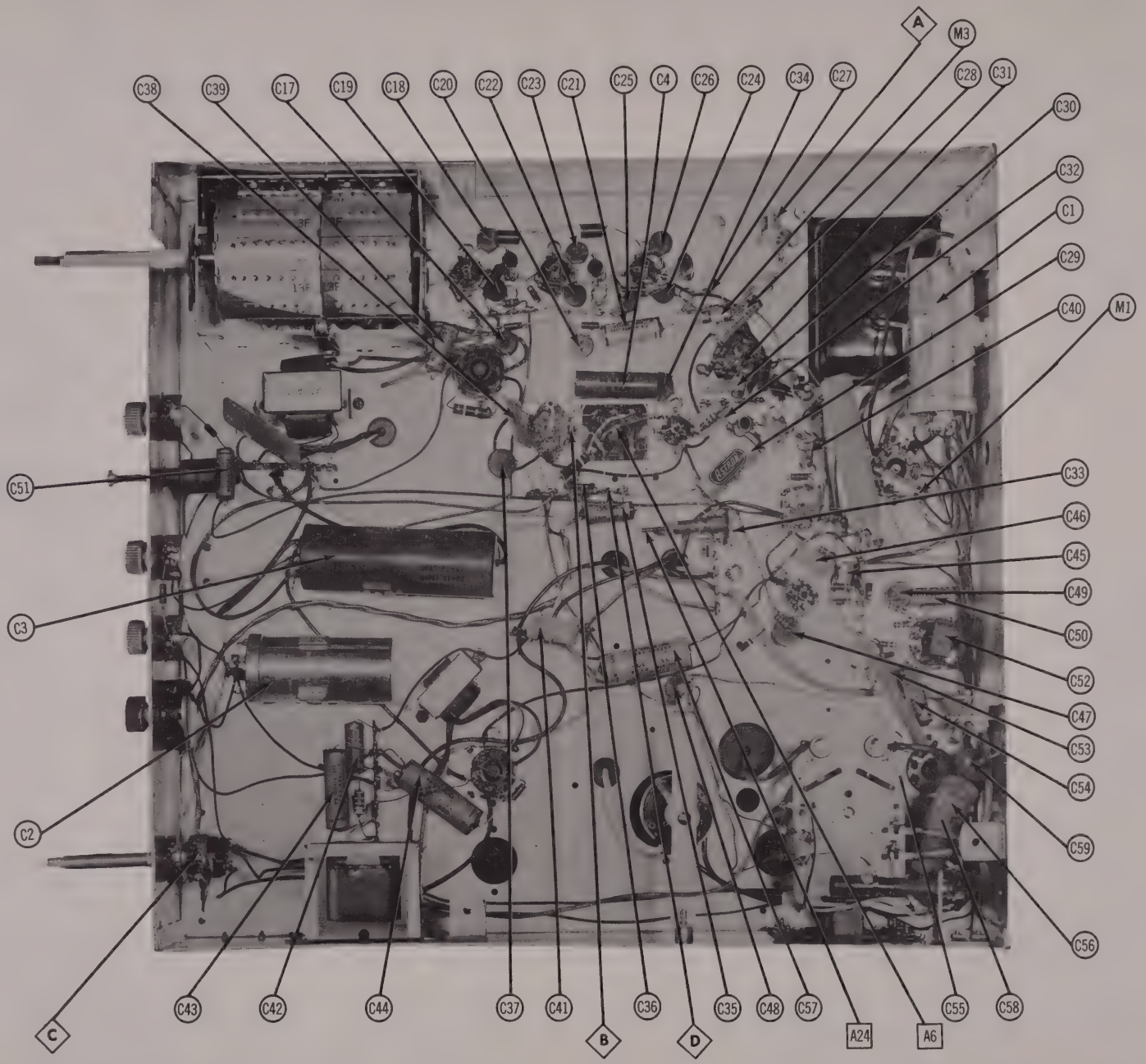
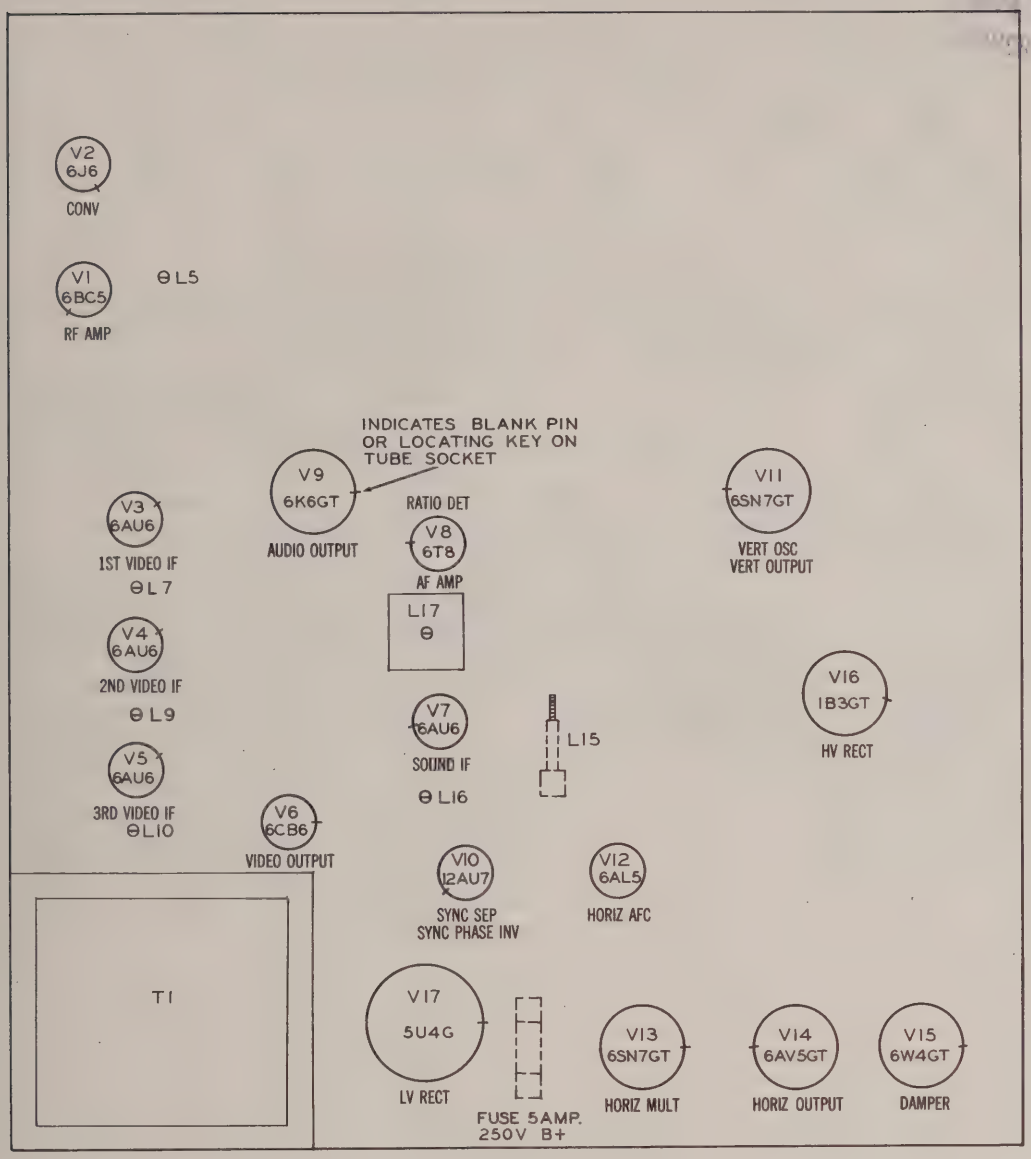


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW- CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TOP VIEW

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound-V17, Fuse (M1)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster-V2, V3, V4, V5, V6
No pic, no sound, has snow-V1, V2, V3
No pic, has sound, has raster-V6, V18
Has pic, ho sound-V7, V8, V9

SYNC FAILURE
No vert. sync-V10, V11
No horiz. sync.-V10, V12, V13
No vert. or horiz. sync.-V10

SWEEP FAILURE
No raster, has sound-V13, V14, V15, V16, V18
No vertical deflection-V11
Poor vert. linearity or foldover-V11
Poor horiz. linearity or foldover-V13, V14, V15
Narrow picture-V13, V14, V15, V16, V17
Vert. off freq.-V11
Horiz. off freq.-V10, V11, V13

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal multivibrator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube, V2, and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the ungrounded side of C21. Connect the positive side to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	23.5MC	Any	DC probe to point ◇A◇ Common to chassis.	A1, A2	Adjust for maximum deflection.
2.	"	"	26.2MC	"	"	A3, A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Direct	High side to ungrounded tube shield floating over dummy converter tube. Low side to chassis.	24MC (10MC Swp)	22.4MC 26.9MC	Any	Vert amp to point ◇A◇ Low side to chassis.		Check for response curve similar to fig. 1. If necessary retouch A1 thru A4 for desired response. Keep generator output low to avoid distorting the response curve.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Turn contrast control to maximum.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.001MFD	High side to point ◇A◇ Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point ◇B◇ Common to chassis.	A5, A6	Adjust for maximum deflection.
5.	"	"	"	"	DC probe to point ◇C◇ Common to point ◇D◇	A7	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Turn contrast control to maximum.
Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	.001MFD	High side to point ◇A◇ Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp to point ◇B◇ Low side to chassis.	A5, A6	Disconnect stabilizer capacitor C4. Adjust for curve of maximum amplitude and symmetry as in fig. 2.
5.	"	"	"	"	"	Vert. amp to point ◇C◇ Low side to chassis.	A7	Reconnect capacitor C4. Adjust so that 4.5MC occurs at center of crossover lines as in fig. 3 SLIGHTLY retouch A6 for maximum amplitude and straightness of crossover lines.

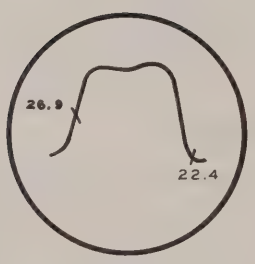


FIG. 1

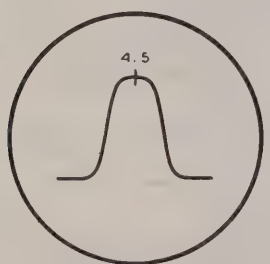


FIG. 2

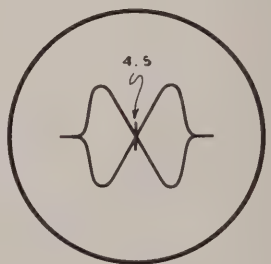


FIG. 3

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels it may be possible to correct them in one step using A8. It should be noted that this is an all channel oscillator circuit adjustment and should not be used to correct any individual channel. If adjustment of A8 will not bring all channels well within the range of the fine tuning control it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel adjustment screws are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	218MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp to point (A) Low side to chassis.	A9	Adjust to place video marker at 50% on high frequency side tof response curve as in fig.4 Sound marker should be at 5 % or less.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A10	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A11	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A12	
			189MC (10MC Swp)	187.25MC 191.25MC	9		A13	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A14	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A15	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A16	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A17	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A18	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A19	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A20	

RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207.MC (10MC Swp)	205.25MC 209.75MC	12	Vert. amp thru 47KΩ to point (E) Low side to chassis.	A21, A22 A23	Adjust for curve of maximum amplitude and symmetry as in fig. 5.
8.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response curve as in fig. 5. If markers fall below 70% on any channel make slight compromise adjustments of A21, A22 and A23 with channel switch set to that channel, then recheck all other channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75 MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

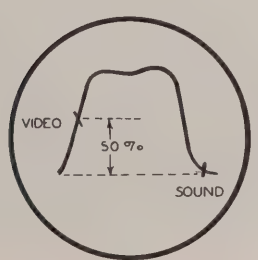


FIG.4

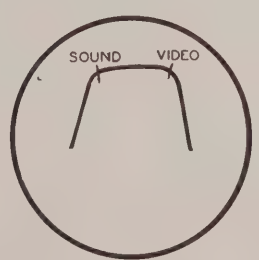
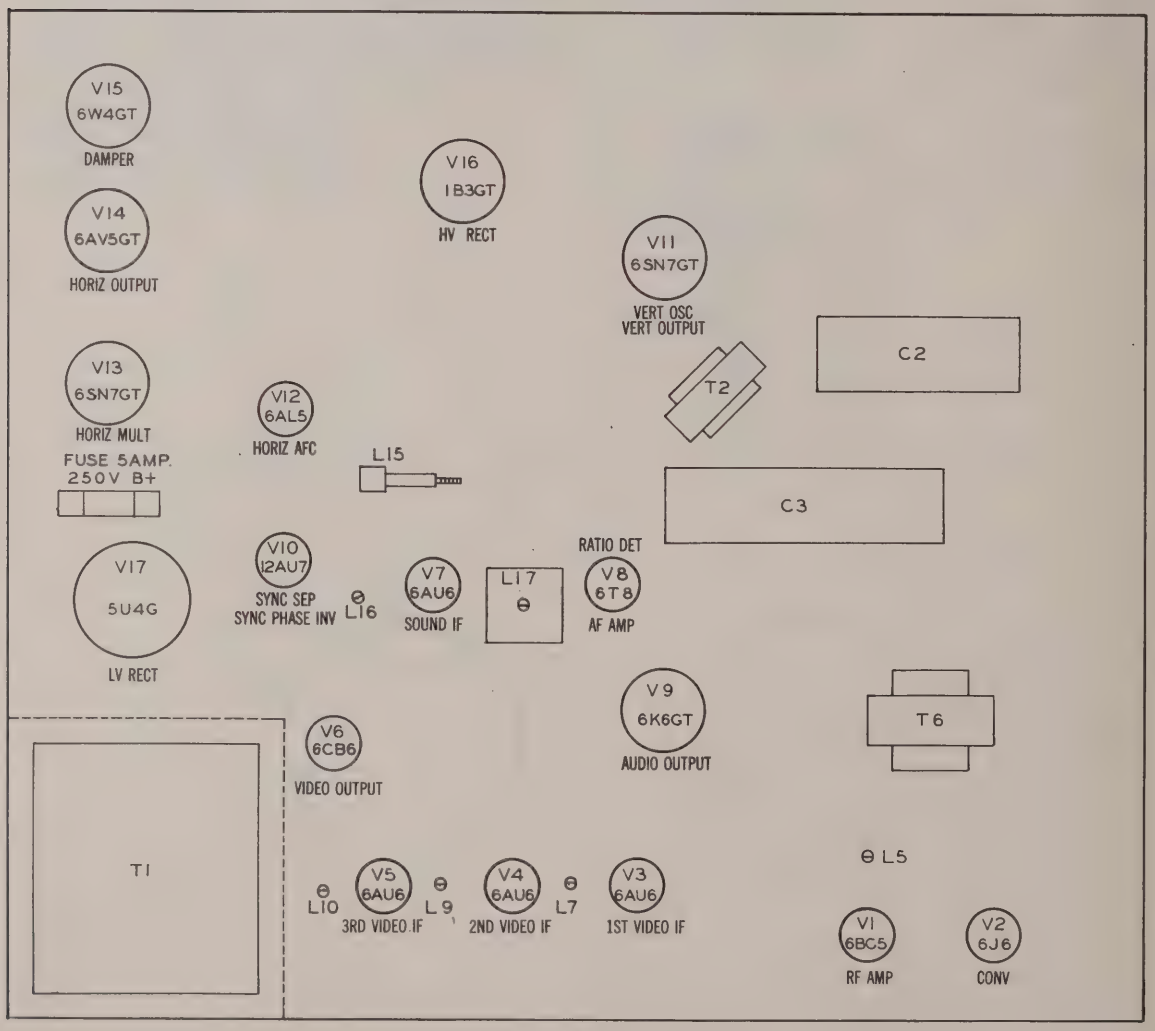


FIG.5

RESISTANCE MEASUREMENTS

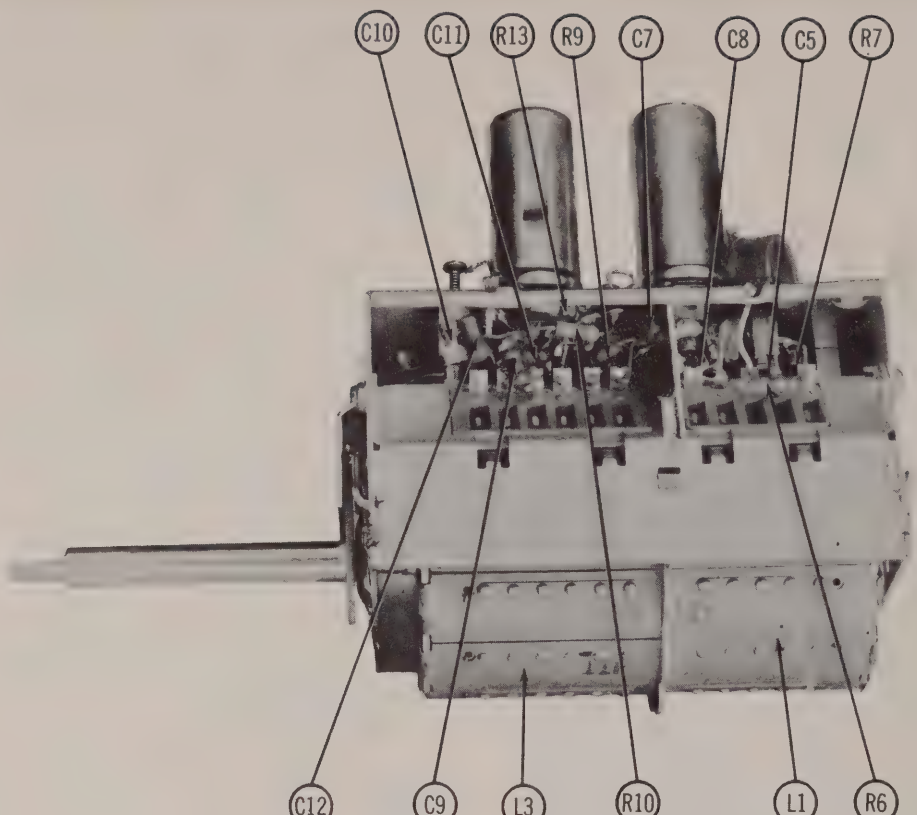
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	1Meg	0Ω	.1Ω	0Ω	†5.6KΩ	†5.6KΩ	0Ω		
V 2	6J6	†8.1KΩ	†18KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6AU6	1Meg	0Ω	.1Ω	0Ω	†3.4KΩ	†3.4KΩ	82Ω		
V 4	6AU6	1Meg	0Ω	.1Ω	0Ω	†3.2KΩ	†3.2KΩ	82Ω		
V 5	6AU6	.2Ω	0Ω	.1Ω	0Ω	†3.1KΩ	†3.1KΩ	150Ω		
V 6	6CB6	1Meg	350Ω	0Ω	.1Ω	†6.1KΩ	†3.1KΩ	0Ω		
V 7	6AU6	470KΩ	0Ω	.1Ω	0Ω	†39KΩ	†39KΩ	0Ω		
V 8	6T8	1Meg	13KΩ	1Meg	0Ω	.1Ω	0Ω	0Ω	10Meg	†500KΩ
V 9	6K6GT	INF	0Ω	†2.5KΩ	†2.1KΩ	500KΩ	INF	.1Ω	390Ω	
V 10	12AU7	†13KΩ	†820KΩ	2.7KΩ	.1Ω	.1Ω	†820KΩ	2.2Meg	0Ω	0Ω
V 11	6SN7GT	1.5Meg	†2.9Meg	0Ω	2.2Meg	#660Ω	1.2KΩ	0Ω	.1Ω	
V 12	6AL5	27KΩ	27KΩ	.1Ω	0Ω	4.8Meg	0Ω	4.8Meg		
V 13	6SN7GT	100KΩ	†220KΩ	1.5KΩ	5.1Meg	†4KΩ	1.5KΩ	0Ω	.1Ω	
V 14	6AV5GT	470KΩ	.1Ω	47Ω	INF	#23Ω	INF	0Ω	†20KΩ	
V 15	6W4GT	INF	INF	INF	INF	¶80Ω	INF	¶0Ω	¶.1Ω	
V 16	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								TOP CAP #723Ω
V 17	5U4G	INF	60KΩ	INF	25Ω	INF	27Ω	INF	60KΩ	
V 18	21LP4A	0Ω	0Ω	PIN 6 0Ω	PIN 10 †73Ω	PIN 11 110KΩ	PIN 12 .1Ω			

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 2 OF V17
# MEASURED FROM PIN 3 OF V15
¶ MEASURED FROM PIN 7 OF V15

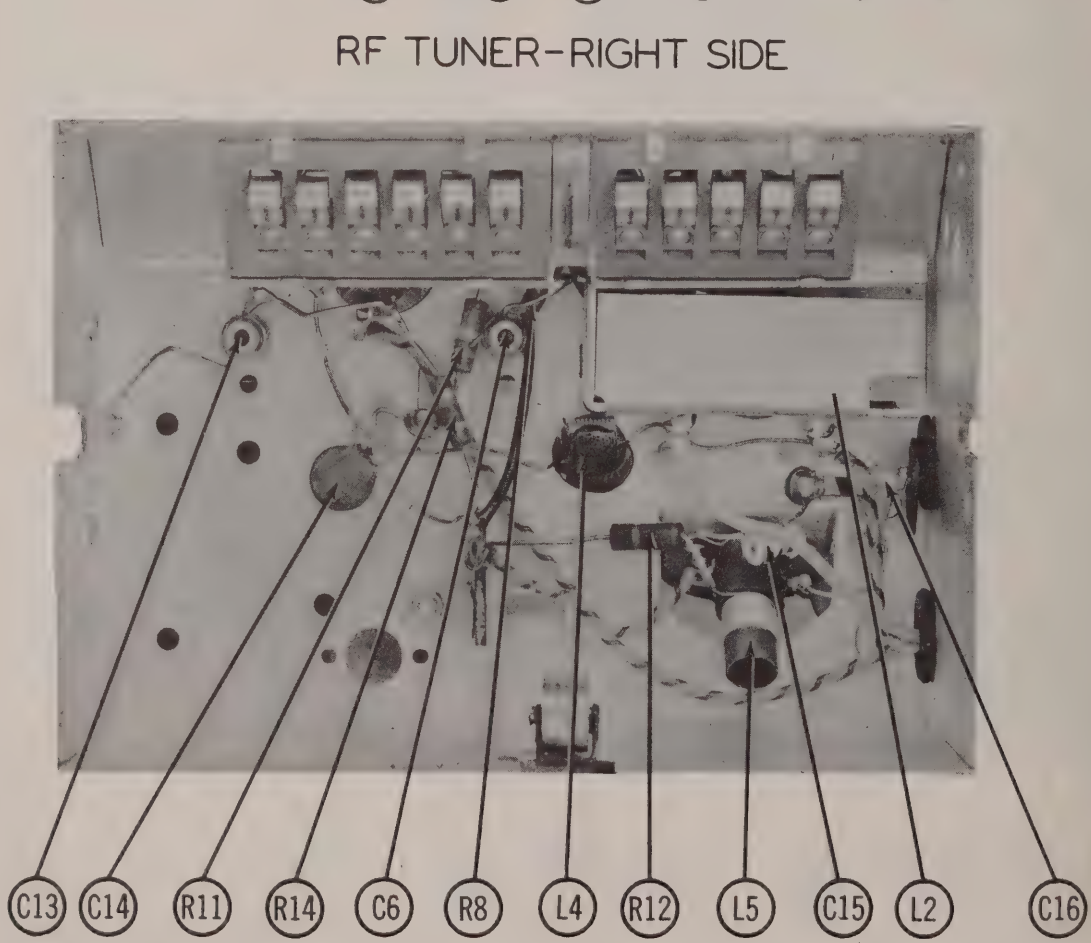


BOTTOM VIEW

TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

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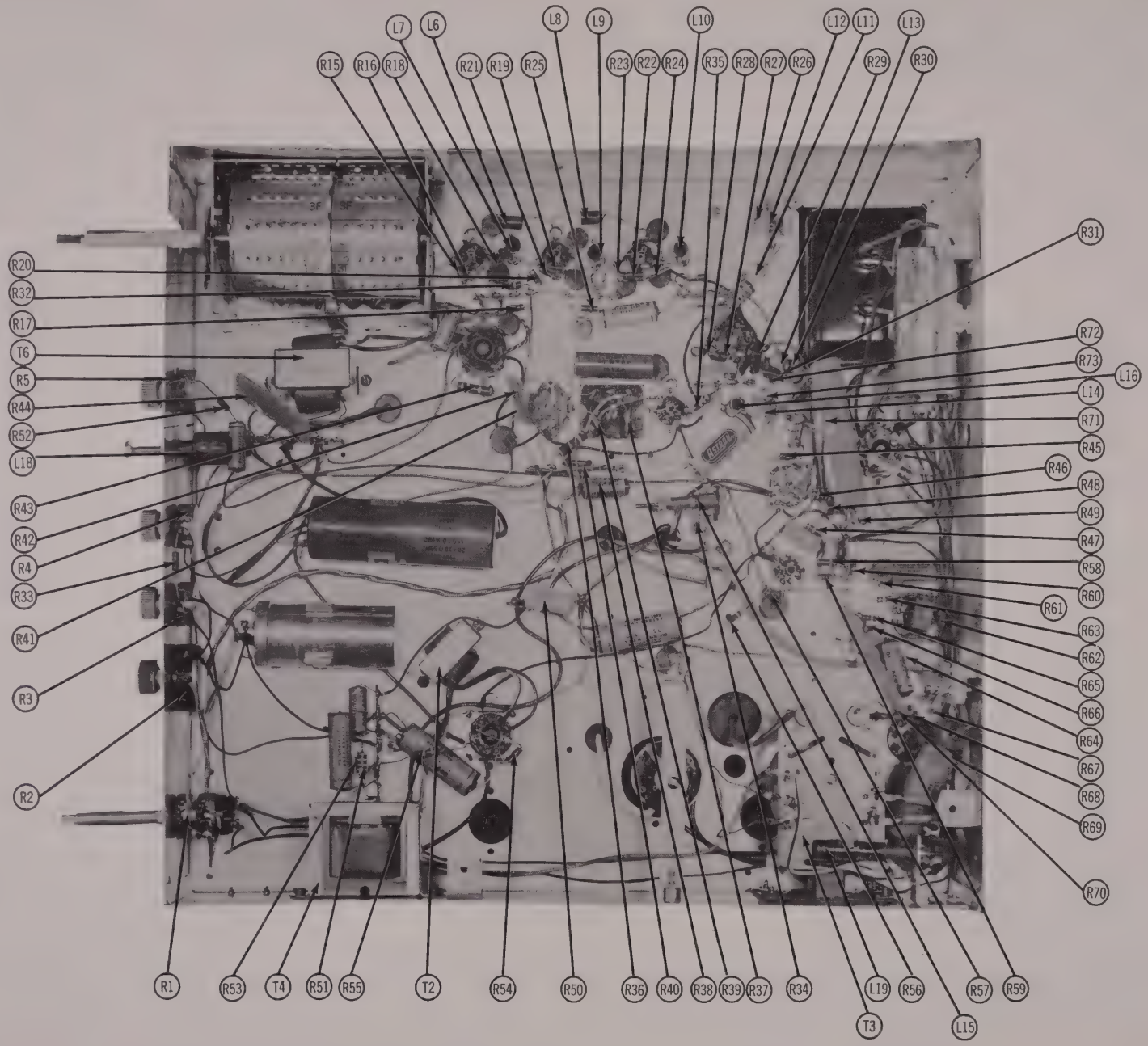


CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CROYDON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier		6DC5	7BD	
B	RF Amplifier		6AG5	7BD	
C	RF Amplifier		6CB6	7CM	
V2	Converter		6J6	7BF	
V3	1st. Video IF Amp.	22-500	6AU6	7BK	
V4	2nd. Video IF Amp.	22-500	6AU6	7BK	
V5	3rd. Video IF Amp.	22-500	6AU6	7BK	
V6	Video Output	22-506	6CB6	7CM	
V7	Sound IF Amp.	22-500	6AU6	7BK	
V8	Ratio Detector - AF Amplifier	22-502	6T8	9E	
V9	Audio Output	22-504	6K6GT	7S	
V10	Sync Separator - Sync Phase Inv.	22-503	12AU7	9A	
V11	Vert. Oscillator - Vert. Output	22-505	6SN7GT	8BD	
V12	Horiz. AFC	22-501	6AL5	6BT	
V13	Horiz. Mult.	22-505	6SN7GT	8BD	
V14	Horiz. Output		6AV5GT	6CK	
V15	Damper	22-507	6W4GT	4CG	
V16	HV Rectifier	22-508	1B3GT	3C	
V17	LV Rectifier	22-510	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: CROYDON PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V18A	22-513 (21LP4A)	21FP4A	12C	① Circuit changes necessary
B	22-512 (17RP4)	17RP4	12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CROYDON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	450	22-A-17-E	AFH2-57		UPT4445		FP238	TVL-2764	
B	▲40	450								
C2	80	450	22-A-16-E	AFH1-55		UP8045		FP149	TVL-1735	
C3A	20	450		AFH4-62		UP2145		2N733	TVL-3776	Red
B	10	450				BRH5015			TVA-1311	Green
C	150	50								Blue
C4	5	50	22-83E	PRS150/4		BR550		TC30	TVA-1303	
C5	3-9				829-10					
C6	.5-3				829-3			CT565A		
C7	120			SI120	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C8	1000			SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C9	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C10	.5-3				829-3			CT565A		
C11	20			SI20NP0	TCZ-20		NP0K-200	ZT-542	5TCC-Q2	
C12	10			SI10N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C13	3-3				829-3			CT565A		
C14A	1000			BPD-2X001	DD-2-102	TM5DD1	81Z-001	DCD-521	5HK-2D1	
B	1000									
C15	10			SI10N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C16	120			SI120	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C17	5000		22-419	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C18	5000		22-419	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C19	5000		22-419	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C20	5000		22-419	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C21	.1	200	22-407	P288-1	DF-104	PT2P1		PT401	2TM-P1	
C22	5000		22-419	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C23	5000		22-419	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C24	5000		22-419	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C25	5000		22-419	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C26	5000		22-419	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C27	5			SI5	TCZ-4.7	5W5V5	GP1K-050	ZT-555	5GA-V5	
C28	.05	200	22-405	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C29	.1	400	22-408	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C30	47	500	22-412	1469-00005	TCZ-47	5R5Q5	NP0K-470	MCB225	4MS-45	
C31	5			SI5	TCZ-4.7	5W5V5	GP1K-050	ZT-555	5GA-V5	
C32	39	500	22-413	1468-00004	D6-390	5W5Q4	GP1K-390	MC223	1FM-44	
C33	47	500	22-412	1469-00005	TCZ-47	5R5Q5	NP0K-470	MCB225	4MS-45	
C34	10000		22-420	BPD-01	DD-103	TM5S1	82L-01	DC-511	5HK-D1	
C35	.001	600	22-400	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C36	2000			SI2000	D6-202	TM5D2	GP2-333-202	UC-522	5HK-D2	
C37	10000		22-420	BPD-01	DD-103	TM5S1	82L-01	DC-511	5HK-S1	
C38A	.01		22-85Q							
B	250				†PC-80		†1404-01		†102C1	
C										
C39	.005	600	22-403	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C40	2000			SI2000	D6-202	TM5D2	GP2-333-202	UC-522	5HK-D2	
C41A	.002		22-86Q	P688-002		PTE6D2		PT622		
B	.005			P688-005	•PC-100	PTE6D5	•1405-01	PT625	•101C1	
C	.005			P688-005		PTE6D5		PT625		
C42	.005	600	22-403	P688-005		PTE6D5	GP2-333-502	PT625	6TM-D5	
C43	.05	500	22-406	P688-05		PTE6S5		PT615	6TM-S5	
C44	.1	500	22-409	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C45	1500	500	22-417	1467-0015	D6-152	1W5D15	GP2L-152	MC256	1FM-215	
C46	1500	500	22-417	1467-0015	D6-152	1W5D15	GP2L-152	MC256	1FM-215	
C47	10000		22-420	BPD-01	DD-103	TM5S1	82L-01	DC-511	5HK-S1	
C48	.05	600	22-408	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C49	5000		22-419	BPD-005	DD-502	TM5D5	81L-005	DC-525	5HK-D5	
C50	.05	200	22-405	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C51	.004	600	22-402	1464-004		1DR5D4		MCB463	MS-34	
C52	330	500	22-415	1469-00035						
C53	390	500	22-416	1469-0004		5R5T4		MCB243	MS-34	

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CROYDON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C54	.01	600	22-404	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C55	.05	600	22-406	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C56	.25	600	22-411	684-25		PTE6P25		PT6025	6TM-P25	
C57	.25	600	22-411	684-25		PTE6P25		PT6025	6TM-P25	
C58	10000		22-420	BPD-01	DD-103	TM5S1	82L-01	DC-511	5HK-S1	
C59	.25	200	22-410	P488-25		PJ2P25		PT4025	2TM-P25	

† Items C38A, C38B, C38C, R42A, R42B are combined in one unit.
When replacing items separately C38B and C38C should total 250MMF.
• Items C41A, C41B, C41C, R50A, R50B, R50C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROYDON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1000Ω	½	22A20-V	QJ-258 •		SBB-636-S	UF13L	Contrast-Panel -Note 1
B	1 Meg	½					UR16A	Volume-Rear
C	Switch						US-26	Attach to RIB
R2A	5000Ω	2	22A21-5V	W-5000	A43-5000	V-135	R5000L	Vert. Linearity-WireWound Note 2
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R2A
R3A	1 Meg	½	22A21-3V	QH-137	AG-61-S	B-69	U-54	Vert. Hold
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R3A
R4A	250KΩ	½	22A21-1V	QH-130	AG-55-S	B-50	U-46	Brightness
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R4A
R5A	3 Meg	½	22A21-4V	QH-140	AG-85-S	B-84	U-59	Height
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R5A

Note 1 Some models use alternate control (Part No. 22A29-V).
Note 2 Some models use alternate control (Part No. 22A21-6V).
• CONCENTRIKIT EQUIVALENT, KIT K-2, BASE ELEMENTS AND SHAFTS, B11-108 & P1-204 (Panel), B13-137 & R2-216 (Rear) & SWITCH 76-1.

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: CROYDON PART No.	IRC PART No.	NOTES
R6	3900Ω	½	22-306	BTS-3900	Note 1
R7	47KΩ	½			
R8	2200Ω	½		BTS-2200	
R9	10KΩ	½	22-311		
R10	4700Ω	½	22-307	BTS-4700	
R11	220KΩ	½	22-316	BTS-220K	
R12	15KΩ	½	22-312	BTS-15K	
R13	10KΩ	½	22-311		
R14	4700Ω	½	22-307	BTS-4700	
R15	5600Ω	½	22-308		
R16	82Ω	½	22-301	BTS-82	
R17	150Ω	½	22-302	BTS-150	
R18	100Ω	½		BTS-100	
R19	150Ω	½	22-302	BTS-150	
R20	8200Ω	½	22-310		
R21	82Ω	½	22-301	BTS-82	
R22	150Ω	½	22-302	BTS-150	
R23	6800Ω	½	22-309	BTS-6800	
R24	150Ω	½	22-302	BTS-150	
R25	1 Meg	½	22-319	BTS-1 Meg	Note 2
R26	6800Ω	½	22-309	BTS-6800	
R27	1Meg	½	22-319	BTS-1 Meg	Note 2
R28	82Ω	½	22-301	BTS-82	Note 3
R29	15KΩ	1	22-327	BTA-15K	
R30	8200Ω	2	22-329	BTB-8200	
R31	10KΩ	½	22-311	BTS-10K	
R32	27KΩ	½	22-313	BTS-27K	
R33	10KΩ	½	22-311	BTS-10K	
R34	100KΩ	½	22-315	BTS-100K	
R35	470KΩ	½	22-317	BTS-470K	
R36	39KΩ	1	22-328	BTA-39K	
R37	270Ω	½	22-303	BTS-270	
R38	33KΩ	½	22-314	BTS-33K	
R39	6800Ω	½	22-309	BTS-6800	
R40	6800Ω	½	22-309	BTS-6800	
R41	10 Meg	½	22-323	BTS-10 Meg	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: CROYDON PART No.	IRC PART No.	NOTES
R42A	500KΩ	½	†22-85Q		
B	500KΩ	½			
R43	390Ω	1	22-325	BTA-390	
R44	2000Ω	10	22-331	1 3/4A-2000	Note 4
R45	2.2Meg	½	22-321	BTS-2.2Meg	
R46	820KΩ	½	22-318	BTS-820K	
R47	2700Ω	½	22-305	BTS-2700	Note 5
R48	6800Ω	½	22-309	BTS-6800	
R49	4000Ω				Note 5
R50A	22KΩ	½		BTS-22K	
B	8200Ω	½	•22-86Q	BTS-8200	
C	8200Ω	½		BTS-8200	
R51	1.2Meg	½	22-320	BTS-1.2Meg	Note 6
R52	2.2Meg	½	22-321	BTS-2.2Meg	
R53	6800Ω	½	22-309	BTS-6800Ω	
R54	2.2Meg	½	22-321	BTS-2.2Meg	
R55	270Ω	½	22-303	BTS-270	
R56	4700Ω	½	22-307	BTS-4700	
R57	27KΩ	½	22-313	BTS-27K	
R58	100KΩ	½	22-315	BTS-100K	
R59	100KΩ	½	22-315	BTS-100K	
R60	4.7Meg	½	22-322	BTS-4.7Meg	
R61	470KΩ	½	22-317	BTS-470K	
R62	1500Ω	½	22-304	BTS-1500	
R63	3900Ω	½	22-306	BTS-3900	
R64	100KΩ	½	22-315	BTS-100K	
R65	220KΩ	½	22-316	BTS-220K	
R66	4700Ω	½	22-307	BTS-4700	
R67	470KΩ	½	22-317	BTS-470K	
R68	47Ω	½	22-300	BW-½-47	
R69	47Ω	½	22-300		
R70	20KΩ	15	22-330	2D-20K	
R71	3500Ω	10	220332	1 3/4A-3500	
R72	6800Ω	½	22-309	BTS-6800	
R73	15KΩ	½	22-312	BTS-15K	

Note 1 Some models use a 3000Ω resistor in this application.
Note 2 Some models use a 1.2Meg resistor in this application.
Note 3 Some models use a 100Ω resistor in this application.
Note 4 Some models use a 1500Ω resistor in this application.
Note 5 Some models use a 2200Ω resistor in this application.
Note 6 Some models use a 1.5Meg resistor in this application.
† Items R42A, R42B, C38A, C38B, C38C are combined in one unit.
• Items R50A, R 50B, R50C, C41A, C41B, C41C are combined in one unit.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: CROYDON PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	5"	74Ω	3.4Ω	22-163		5E7SS	① Alternate 8" Speaker
				22-156 ①			

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: CROYDON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC ② 1.72A	680VCT .225A	5VAC ③ 3A	6.3VAC ④ 1.2A	22-C-35-H		P-3070	TP-405	R-39BC
				SEC. 4 6.3VAC ⑤ 6.6A					

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: CROYDON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	215Ω	1310Ω	22-B-146	A-8125	A-3000 ①	TBO-2 ②	A-97X	Vert. Osc. Trans.
T3	723Ω,tap ⑥ 23Ω	7.9Ω tap ⑦ .4Ω, 6.4Ω SEC. 2	22-180•	A-8130 ③	HVO-7 ④	TFB-5 ⑤	D-14 ⑥	Horiz. Output Trans.
T4	660Ω	8Ω	22-B-147	A-8115 ⑦	A-3036	TSO-9	A-99X ⑧	Vert. Output Trans.
T5A	11Ω		22-B-148	DY-8A	MDF-70	TY-2	Y-12	Horiz. Deflection Coils
B	49Ω							Vert. Deflection Coils

① Drill one new mtg. hole.
② Mount on top of chassis.
③ Use with width coil WC-5
④ Use with width coil MWC-1
⑤ Use with width coil (with AGC winding) with approx. range of 4-29 Millihenries
⑥ Use with width coil WC-11
⑦ Drill new mtg. holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: CROYDON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T6	5.3KΩ	3.4Ω	452Ω	.42Ω	22-A-15-H	A-3877	A-2930	RO-9	S-5Z	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: CROYDON PART No.	REPLACEMENT DATA: MERIT PART No.	NOTES
L1	Ant. Coils	0Ω		22-A-31-D		
L2	Fil. Choke	0Ω				
L3	RF, Mixer Grid, & Osc. Coils	0Ω				
L4	Fil. Choke	0Ω		22-A-31-D		
L5	1st. Video IF	1Ω			TV-103	
L6	Fil. Choke	0Ω		22-A-31-D		
L7	2nd. Video IF	.3Ω	.2Ω	22-A-152		
L8	Fil. Choke	0Ω		22-A-31-D		
L9	3rd. Video IF	.3Ω	.2Ω	22-A-152		
L10	4th. Video IF	.3Ω	.2Ω	22-A-152		
L11	Series Peaking Coil	4.4Ω		22-181	TV-181	96 Microhenries
L12	Shunt Peaking Coil	14Ω		22-184		810 Microhenries
L13	Series Peaking Coil	6Ω		22-182	TV-184	163 Microhenries
L14	Shunt Peaking Coil	11Ω		22-183	TV-188	481 Microhenries
L15	4.5MC Trap	2.5Ω		22-A-13-C	TV-151	
L16	Sound If	2.4Ω			TV-151	
L17	Ratio Det.	3.8Ω	.3ΩCT	22-73-C	TV-114 ■	Tertiary Winding - .25Ω
L18	Horiz. Osc.	50Ω		22-A-11-C	TV-163	
L19	Width Coil	.35Ω		22-A-88-C	MWC-2 •	

• Enlarge mtg. holes
■ Use adaptor plate

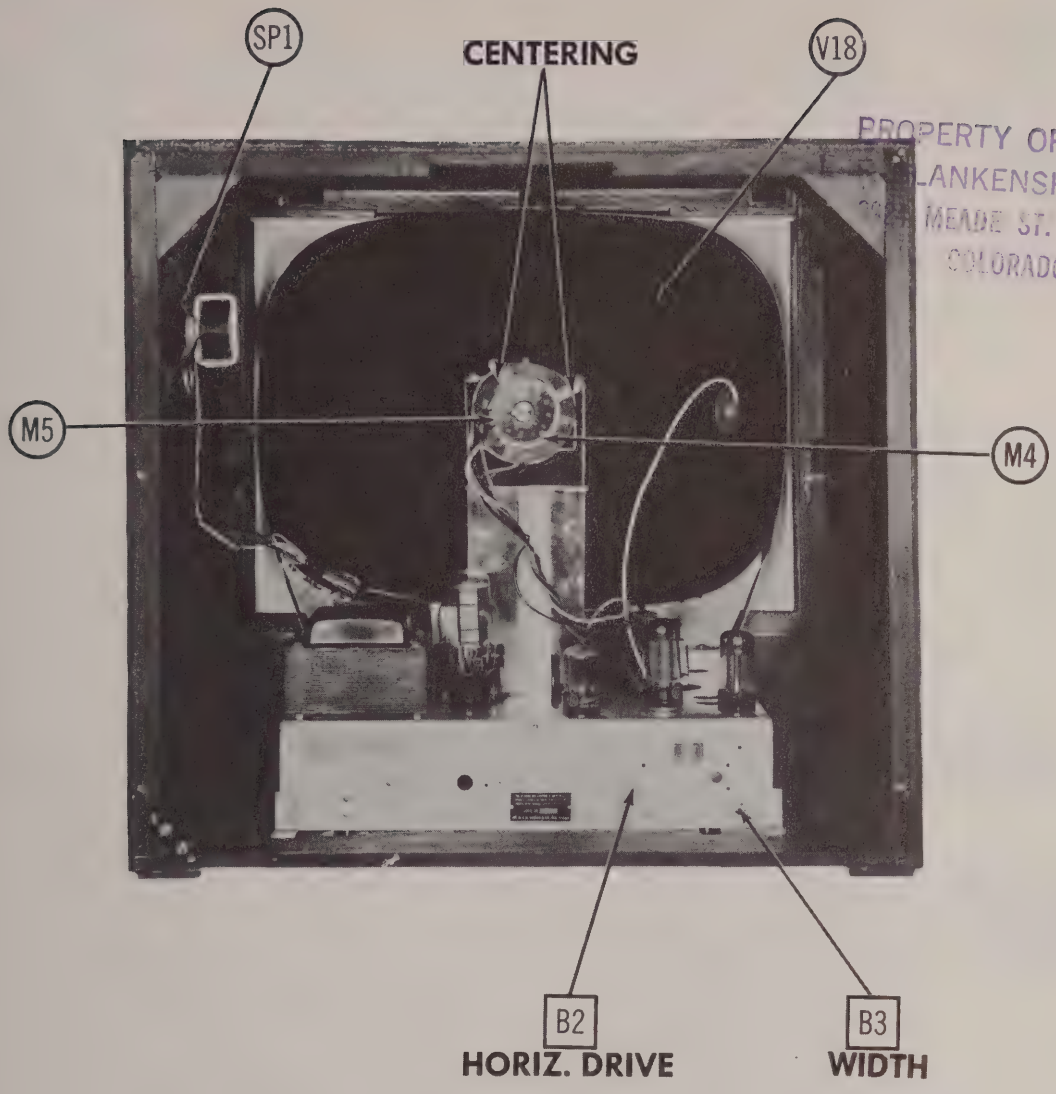
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: CROYDON PART No. FUSE	CROYDON PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG P/T	5A 250V.	22-179		318005		GJV-5	

MISCELLANEOUS

ITEM No.	PART NAME	CROYDON PART No.	NOTES
M2	RF Tuner	22-A-77-X	Complete with tubes
M3	Crystal	22-511	1N60
M4	Centering Magnet	22-A-149	Mounted on Back Cover of Deflection Yoke
M5	Ion Trap	22-A-150	
B2	Trimmer	22-A-74	Horiz. Drive
	Knob	22-219	Channel Selector
	Knob	22-220	Fine Tuning (Maroon) Table Models only
	Knob	22-214	Fine Tuning (Gold) Console Models only
	Knob	22-221	Contrast (Maroon) Table Models only
	Knob	22-215	Contrast (Gold) Console Models only
	Knob	22-223	Off/on Volume
	Mask	22-164	17" Picture Tube
	Mask	22-157	21" Picture Tube
	Safety Glass	22-165	17" Picture Tube
	Safety Glass	22-158	21" Picture Tube
	Back Cover	22-141	17" Models
	Back Cover	22-C-140	21" Models
	Cabinet	22-E-144	Model C17FTM
	Cabinet	22-E-143	Model C21FTM
	Cabinet	22-E-142	Model C21FCM
	Control Door	22-195	

CROYDON MODELS C17FTM, C21FCM, C21FTM



PROPERTY OF
LANKENSHIP
MEADE ST.
COLORADO

CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Adjust the horizontal hold slug (B1) to synchronize the picture horizontally.

Adjust the horizontal drive trimmer (B2) for the best compromise between horizontal linearity and brightness.

Adjust the width slug (B3) for a picture slightly wider than necessary to fill the picture mask.

DISASSEMBLY INSTRUCTIONS

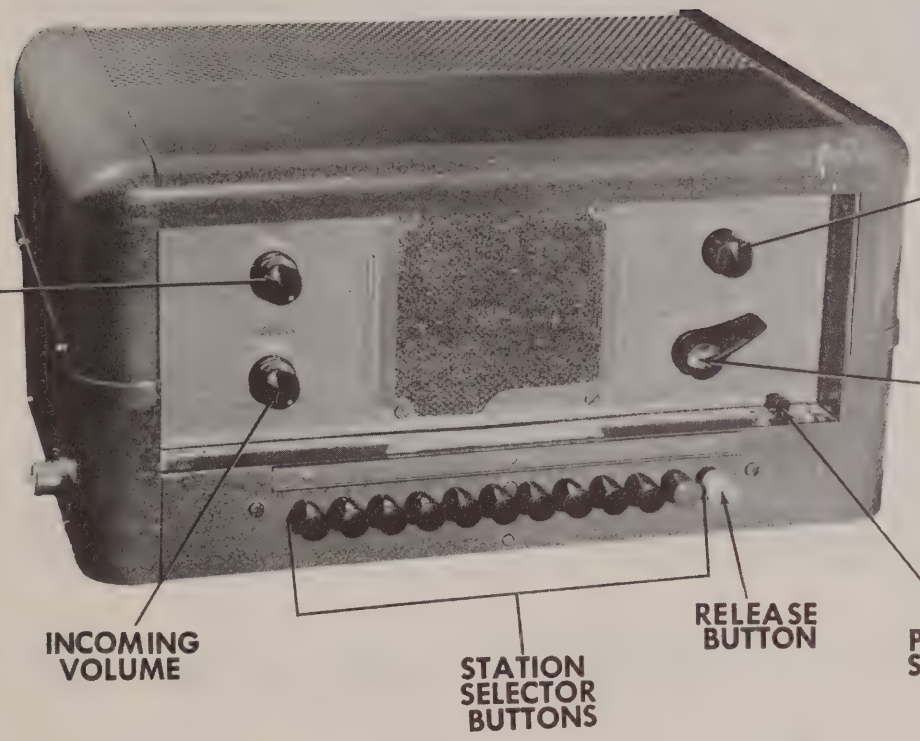
1. Remove 4 push on type control knobs from front panel.
2. Remove 6 wood screws. Remove rear cover.
3. Disconnect 4 speaker leads.
4. Remove 2 wood screws. Remove antenna strip.
5. Remove 2 chassis brackets & 4 chassis bolts. Remove chassis.
6. Remove 2 speaker nuts. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.

DUKANE
MODEL 4A100

PROPERTY
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

DUKANE
MODEL 4A100



DUKANE
MODEL 4A100

TRADE NAME	DuKane Model 4A100
MANUFACTURER	DuKane Corp., St. Charles, Ill.
TYPE SET	AC Operated Inter-Communication System Master Unit
TUBES (Five)	Types 6SJ7 Pre-Amp., 6SL7GT AF Amp.-Phase Inv.,(2) 6V6GT Audio Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC RATING .68 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

DUKANE
MODEL 4A100

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: DUKANE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	Pre Amplifier	262-6SJ7	6SJ7	8N	
V2	AF Amplifier Phase Inverter	262-6SL7GT	6SL7GT	8BD	
V3	Audio Output	262-6V6GT	6V6GT	7AC	
V4	Audio Output	262-6V6GT	6V6GT	7AC	
V5	Rectifier	262-5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: DUKANE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲20	500	199-2914	AFH2-69		UP2250		FP376.5	TVL-3780	
B	▲20	500								
C2A	▲30	350	199-2905	AFH3-37		UP32245		FP343.6	TVL-4766	
B	■20	350								
C	▲10	350								
C3	20	25	199-2001-206	PRS25/25		BR252A		TC26	TVA-1205	
C4	.1	400	199-4021-104	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C5	.1	400	199-4021-104	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C6	.0005	600	199-4030-501	SI500	D6-501	PTE6T5	GP2K-501	TP403	6TM-T5	
C7	.1	400	199-4021-104	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C8	.0001	600	199-3001-101	SI100	D6-101	TM5T1	GP1K-101	TP401	6TM-T1	
C9	.002	600	199-4030-202	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C10	.1	400	199-4021-104	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C11	.0001	600	199-3001-101	SI100	D6-101	TM5T1	GP1K-101	TP401	6TM-T1	
C12	.1	400	199-4021-104	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C13	.006	600	199-4030-602	P688-006		PTE6D6		PT626	6TM-D6	

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DUKANE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	400Ω	½	601-39	QI1-103	AG-5-S	B-4		Incoming Volume
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.		Attach to R1A
R2A	500KΩ	½	601-3289	QI3-133	AG-60-Z	B-60	U-48	Outgoing Volume
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R2A

RESISTORS

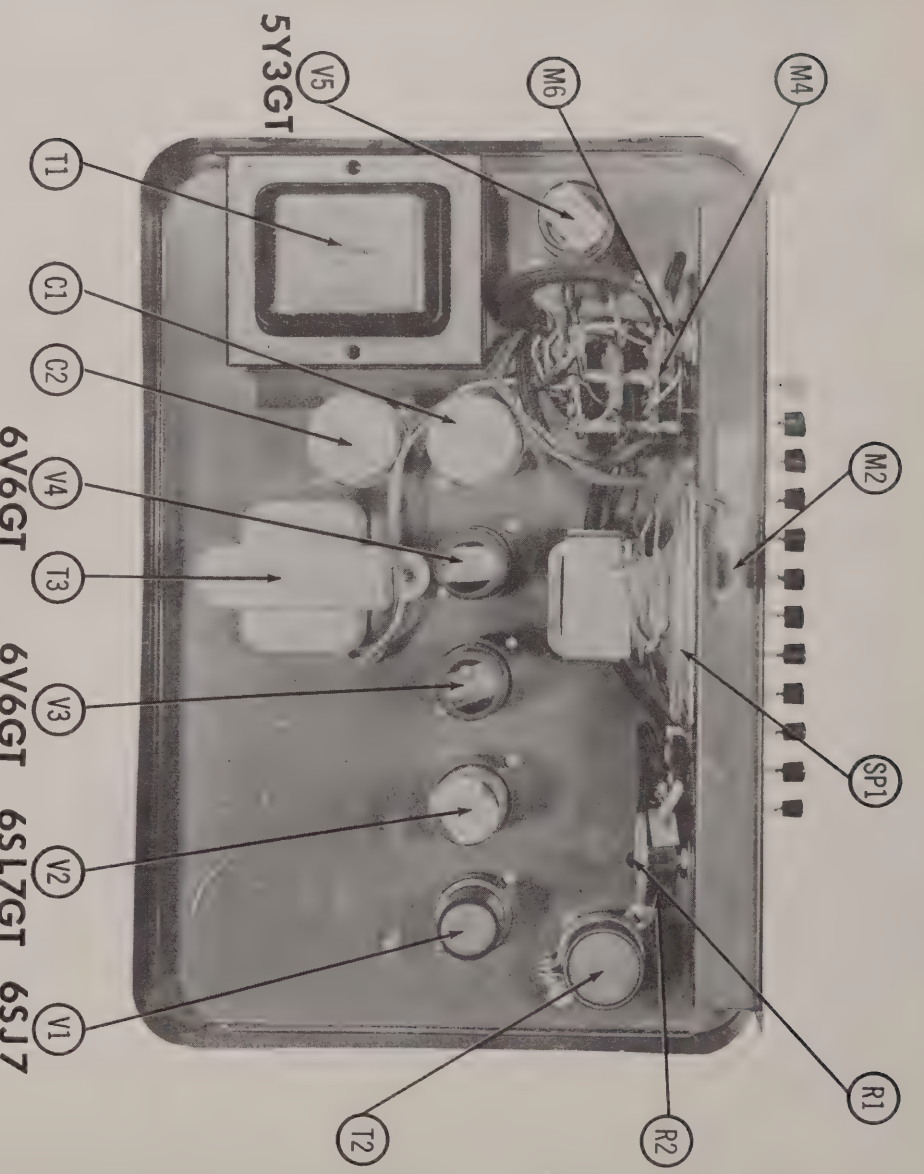
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: DUKANE PART No.	IRC PART No.	NOTES
R3	68KΩ	1	600-0116-683	BTA-68K	
R4	47KΩ	1	600-0116-473	BTA-47K	
R5	270KΩ	1	600-0116-274	BTA-270K	
R6	2.2Meg	1	600-0116-225	BTA-2.2Meg	
R7	470KΩ	1	600-0116-474	BTA-470K	
R8	100KΩ	1	600-0116-104	BTA-100K	
R9	1000Ω	1	600-0116-102	BTA-1000	
R10	270KΩ	1	600-0116-274	BTA-270K	
R11	1000Ω	1	600-0116-102	BTA-1000	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: DUKANE PART No.	IRC PART No.	NOTES
R12	270KΩ	1	600-0116-274	BTA-270K	
R13	8200Ω	1	600-0116-822	BTA-8200	
R14	270KΩ	1	600-0116-274	BTA-270K	
R15	270KΩ	1	600-0116-274	BTA-270K	
R16	250Ω	5	600-1008-251	1 3/4A-250	
R17	56KΩ	1	600-0116-563	BTA-56K	
R18	10KΩ	1	600-0116-103	BTA-10K	
R19	1000Ω	5	600-1008-102	1 3/4A-1000	
R20	33KΩ	1	600-0116-333	BTA-33K	

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: DUKANE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC @ .68A	660VCT .100ADC	5VAC @ 1.8A	6.3VAC @ 1.7A	710-4041	PM-8410	P-2953	PH-120B	R-14B

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (INPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		DUKANE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T2			5.7Ω CT	2.1KΩ	710-3021 710-7 ①					① Alternate Input to match second master unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		DUKANE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC. 1 CT SEC. 2 .73Ω						
T3	15KΩ	64Ω	520Ω CT	5.4Ω CT	710-2031 710-3017 ①					① Alternate Output to match second master unit.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	DUKANE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	64Ω	S-10995 S-9503 ①		4A1Z64	① Alternate 4" PM speaker

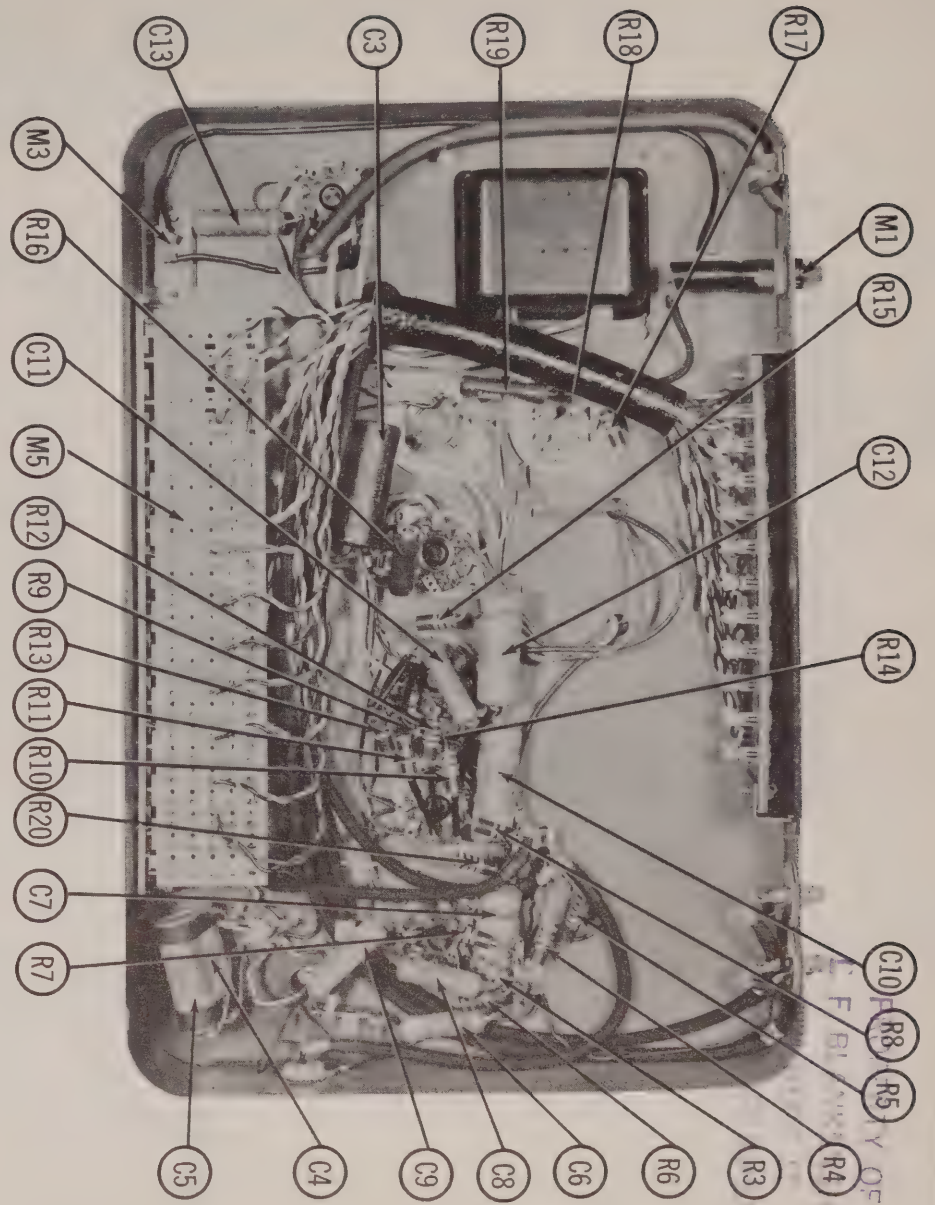
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			DUKANE PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	2A 250V.	320-835-200		312002	342001	AGC-2	HKP

MISCELLANEOUS

ITEM No.	PART NAME	DUKANE PART No.	NOTES
M3	Switch	680-74	Off/On
M4	Switch	680-73	Talk/Listen
M5	Switch	680-71	Station Selector
M6	Switch	680-9384	External Input Selector

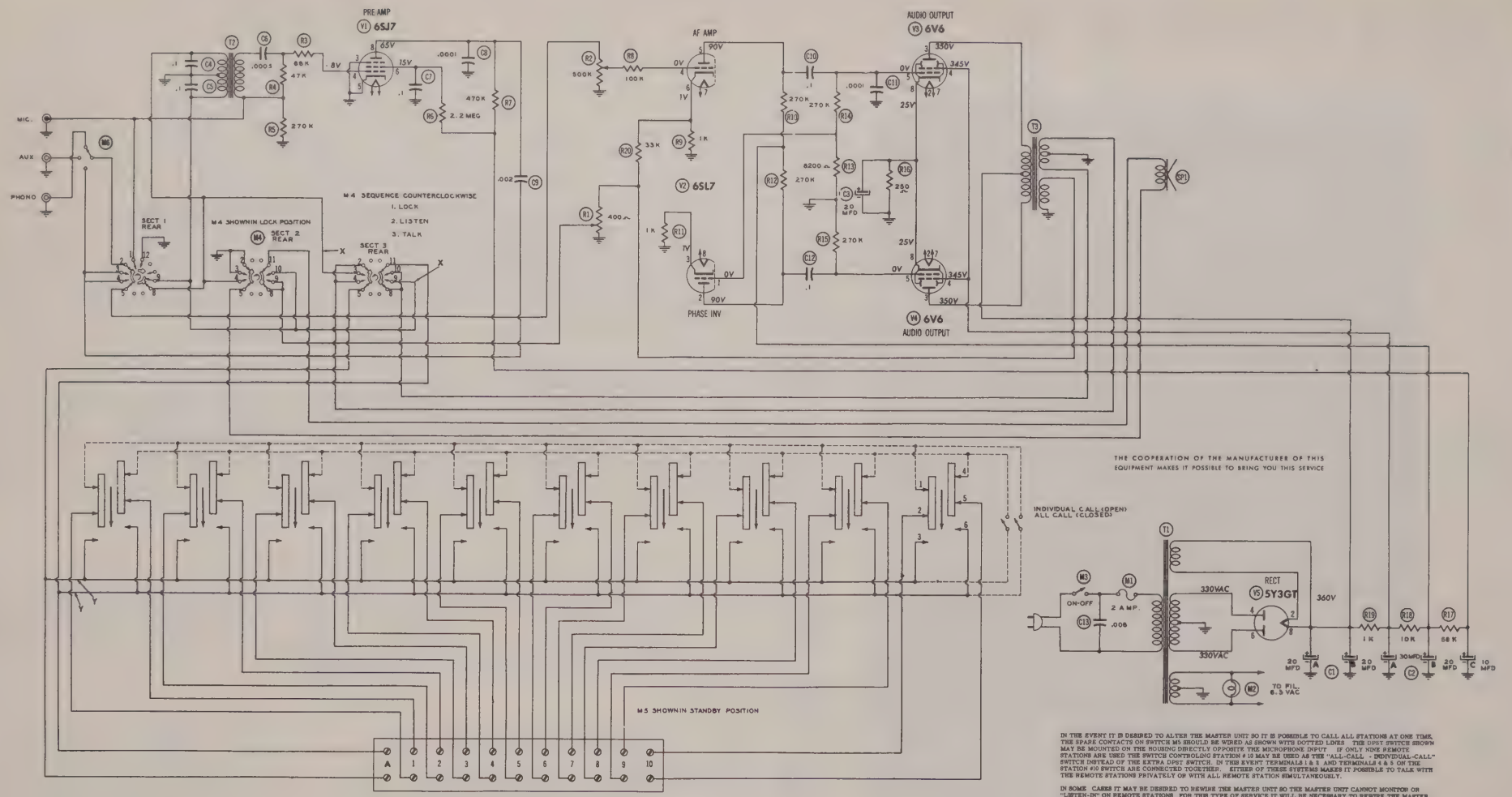
CHASSIS—BOTTOM VIEW



DUKANE MODEL 4A100

SET 186 FOLDER 5

DUKANE MODEL 4A100



THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

IN THE EVENT IT IS DESIRED TO ALTER THE MASTER UNIT SO IT IS POSSIBLE TO CALL ALL STATIONS AT ONE TIME, THE SPARE CONTACTS ON SWITCH M5 SHOULD BE WIRED AS SHOWN WITH DOTTED LINES. THE DPST SWITCH SHOWN MAY BE MOUNTED ON THE HOUSING DIRECTLY OPPOSITE THE MICROPHONE INPUT. IF ONLY NINE REMOTE STATIONS ARE USED THE SWITCH CONTROLING STATION # 10 MAY BE USED AS THE "ALL-CALL - INDIVIDUAL-CALL" SWITCH INSTEAD OF THE EXTRA DPST SWITCH. IN THIS EVENT TERMINALS 1 & 2 AND TERMINALS 4 & 5 ON THE STATION #10 SWITCH ARE CONNECTED TOGETHER. EITHER OF THESE SYSTEMS MAKES IT POSSIBLE TO TALK WITH THE REMOTE STATIONS PRIVATELY OR WITH ALL REMOTE STATION SIMULTANEOUSLY.

IN SOME CASES IT MAY BE DESIRED TO REWIRE THE MASTER UNIT SO THE MASTER UNIT CANNOT MONITOR OR "LISTEN-IN" ON REMOTE STATIONS. FOR THIS TYPE OF SERVICE IT WILL BE NECESSARY TO REWIRE THE MASTER UNIT AS FOLLOWS. DISCONNECT THE WIRES FROM THE TWO TERMINALS OF M4 AT POINTS MARKED "X". THE TWO WIRES REMOVED FROM EACH TERMINAL SHOULD REMAIN TOGETHER AND SHOULD BE TAPED TO AVOID ACCIDENTAL CONTACT WITH OTHER PARTS. ALSO DISCONNECT THE TWISTED BLACK-WHITE PAIR OF WIRES LABELED "T" ON SWITCH M5. PULL THE WIRES THRU THE INSULATED SLEEVE AND CONNECT THEM TO THE PRIMARY WINDING OF INPUT TRANSFORMER T3 AT THE DOUBLE INSULATED TIE LOCATED ON THE CHASSIS NEAR THE END OF STATION SELECTOR SWITCH M5.

RESISTANCE READINGS

From	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SJ7	0Ω	.1Ω	0Ω	115KΩ	0Ω	†2.2Meg	.1Ω	†535KΩ
V 2	6SL7GT	8.2KΩ	†280KΩ	1KΩ	100KΩ	†280KΩ	1KΩ	.1Ω	.1Ω
V 3	6V6GT	0Ω	.1Ω	†260Ω	†1KΩ	340KΩ	†1KΩ	.1Ω	250Ω
V 4	6V6GT	0Ω	.1Ω	†260Ω	†1KΩ	370KΩ	INF	.1Ω	250Ω
V 5	5Y3GT	INF	100KΩ	INF	64Ω	INF	88Ω	INF	100KΩ

ALL MEASUREMENTS TAKEN WITH STATION SELECTOR SWITCH IN #1 POSITION
TALK & LISTEN SWITCH IN "LISTEN" POSITION
† MEASURED FROM Pin 8 OF V3

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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186-5

1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

PROPERTY OF
E. F. KLAMKENSKY
[illegible]

HUDSON ELECTRONICS
MODEL RPM71

HUDSON ELECTRONICS
MODEL RPM71

TRADE NAME	Hudson Electronics Model RPM71
MANUFACTURER	Hudson Electronics Corp., 110 E. 3rd. St., Mt. Vernon, N.Y.
TYPE SET	AC Operated AM-Phono Superheterodyne Receiver With 3 Speed Manual Record Player
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp., 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .25 Amp. @ 117 Volts
TUNING RANGE—BROADCAST	540-1610 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1) Low side to chassis.	455 KC (400%Mod)	Tuning gang fully open	Across Voice Coil	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	600 KC	600 KC	"	A5	Preset A6 1/4 turn from fully closed. Adjust A5 for maximum output.
3.	"	"	1610 KC	Tuning gang fully open	"	A6	Adjust for maximum output. Repeat adjustment of A5 at 600KC and A6 at 1610 KC for accurate setting of frequency range.
4.		Loop	1400 KC	Tune to 1400 KC signal	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

HUDSON ELECTRONICS
MODEL RPM71

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		HUDSON PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF Amp	12AV6	12AV6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	HUDSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	50	150		PRS150/50-30		EDL5315		2N520	TVA-2450	Red
B	30	150								Blue
C2	.05	200		P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C3	47			SI47	D6-470	TM5Q5	GP1K-470	UC-5447	5GA-Q47	
C4	.005	400		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C5	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C6	.005	400		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C7	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C8	.1	400		P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C9	.05	400		P488-05		PTE4S5		PT415	4TM-S5	
C10	.25	200		P488-25		PTE4P25		PT4025	4TM-P25	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	HUDSON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	2 Meg	1/2		Q13-139	AG-66-S	AB-76	U-55	Volume
B	Shaft			Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
R2A	25KΩ	1/2		Q11-120	AG-40-S	AB-26	U-29	Tone
B	Shaft			Not Req.	KSS-3	AK-4	Not Req.	Attach to R2A
C	Switch			76-1	SWB	KB-1	US-26	Attach to R2A

RESISTORS

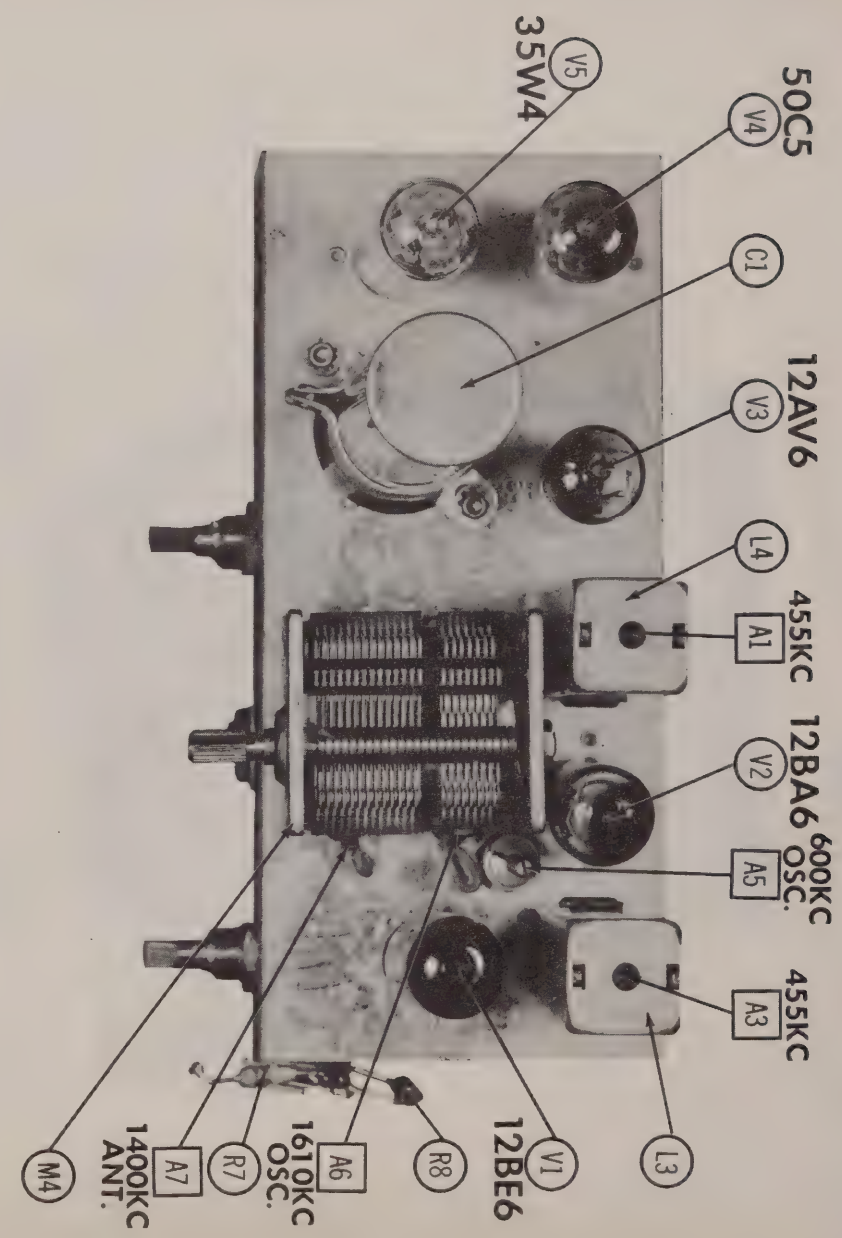
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	HUDSON PART No.	IRC PART No.	
R3	22KΩ	1/2		BTS-22K	
R4	2.2Meg	1/2		BTS-2.2Meg	
R5	270Ω	1/2		BTS-270	
R6	47KΩ	1/2		BTS-47K	
R7	150KΩ	1/2		BTS-150K	
R8	100KΩ	1/2		BTS-100K	
R9	680KΩ	1/2		BTS-680K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	HUDSON PART No.	IRC PART No.	
R10	5 Meg	1/2			
R11	470KΩ	1/2		BTS-470K	
R12	470KΩ	1/2		BTS-470K	
R13	150Ω	1/2		BTS-150	
R14	47Ω	1			
R15	1000Ω	1		BTA-1000	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		HUDSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	1.65KΩ	3.1Ω	200Ω	.54Ω		A-3332 ①	A-2928 ①	RO-2 ①	S-2X ①	① Bend mtg. tabs down file out slots mount on original mounting bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	HUDSON PART No.	JENSEN PART No.	QUAM PART No.	
SP1	5"	PM	3.1Ω		ST.-105 Mod. P-5X	5A07	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	HUDSON PART No.	MERIT PART No.	
L1	Loop Ant.	.4Ω				
L2	Osc. Coil	.5Ω	6Ω			
L3	Input IF	22Ω	22Ω		BC-352	
L4	Output IF	17.5Ω	18Ω		BC-355	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							REMARKS
	HUDSON PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1		LQD-1-J	Q Q-33			96-T	0-1 or S-1 and 0-3 or S-3	* Tone arm assembly.
		†7D		*92V		*25H60		† Complete arm and cartridge assembly.

ASTATIC, SHURE AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENT SEE BELOW.

PHONO NEEDLE

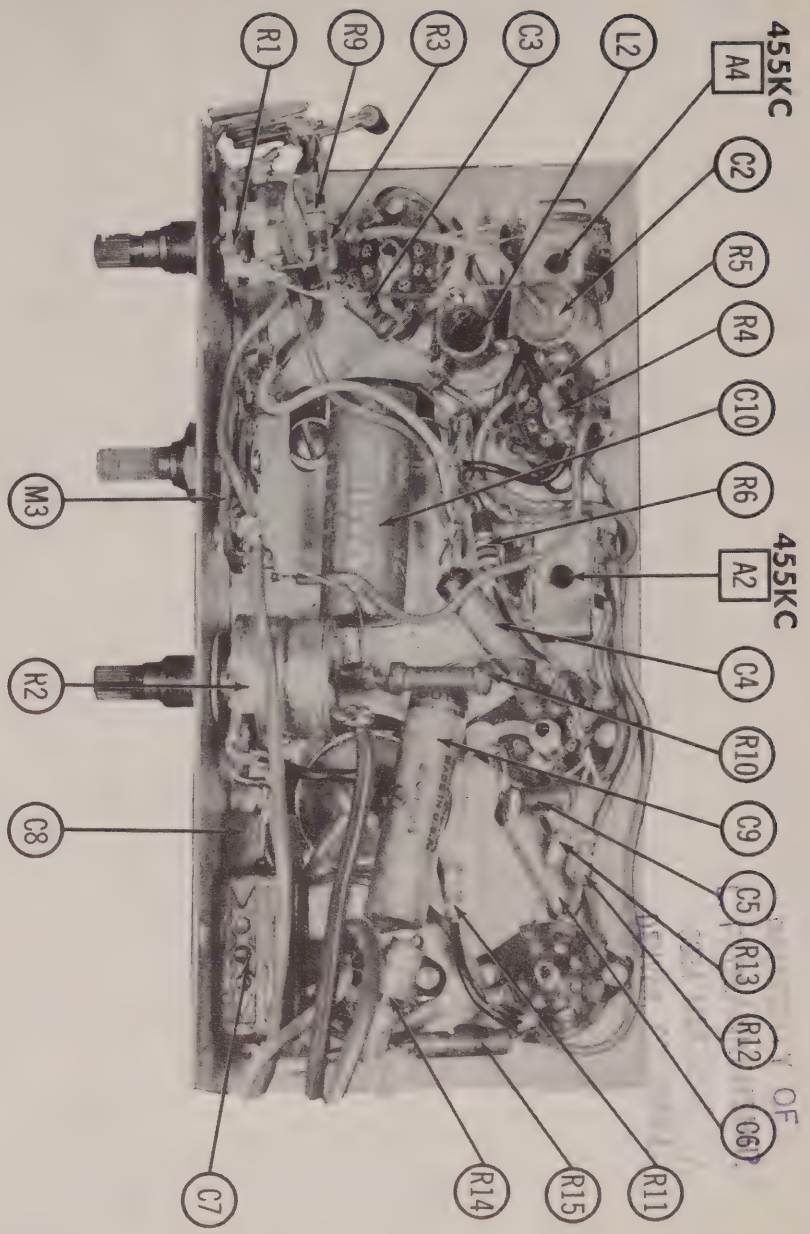
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	HUDSON PART No.	WALCO PART No.	JENSEN PART No.	
M2		W-17A and W17MGA	W-81 and W-82	

MISCELLANEOUS

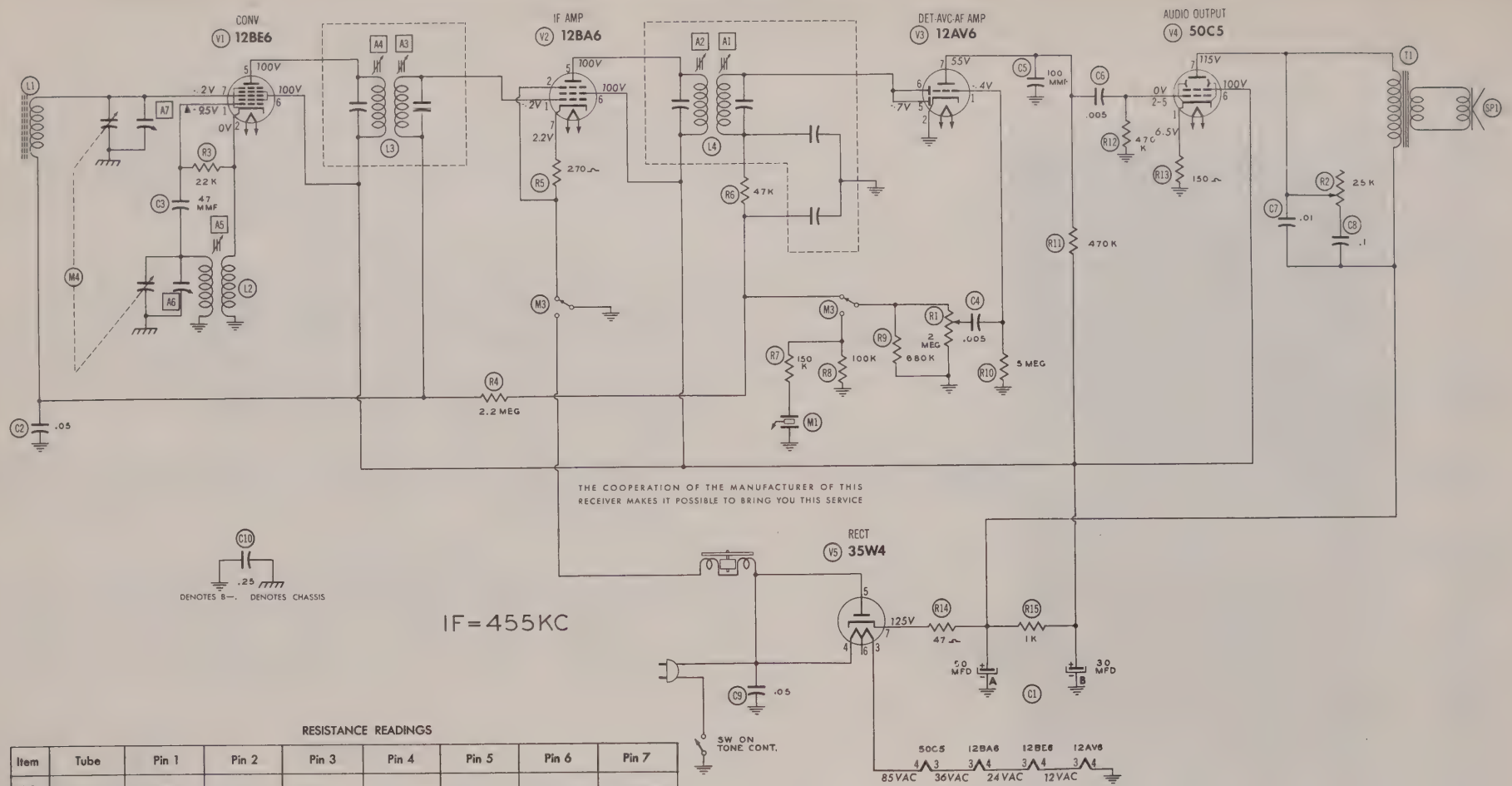
ITEM No.	PART NAME	HUDSON PART No.	NOTES
M3	Switch		Radio-Phono
M4	2 Gang Var. Cap.		(28-400MMF, 24-165MMF)

CHASSIS—BOTTOM VIEW



HUDSON ELECTRONICS MODEL RPM71

HUDSON ELECTRONICS MODEL RPM71



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.5Ω	24Ω	12Ω	†1KΩ	†1KΩ	2.7Meg
V 2	12BA6	2.7Meg	0Ω	36Ω	24Ω	†1KΩ	†1KΩ	270Ω
V 3	12AV6	5 Meg	0Ω	12Ω	0Ω	550KΩ	550KΩ	†470KΩ
V 4	50C5	150Ω	470KΩ	36Ω	86Ω	470KΩ	†1KΩ	†247Ω
V 5	35W4	†47Ω	INF	86Ω	121Ω	121Ω	103Ω	30KΩ

ALL MEASUREMENTS TAKEN IN RADIO POSITION ONLY
† MEASURED FROM PIN 7 OF V5
▲ TAKEN WITH VACUUM TUBE VOLTMETER

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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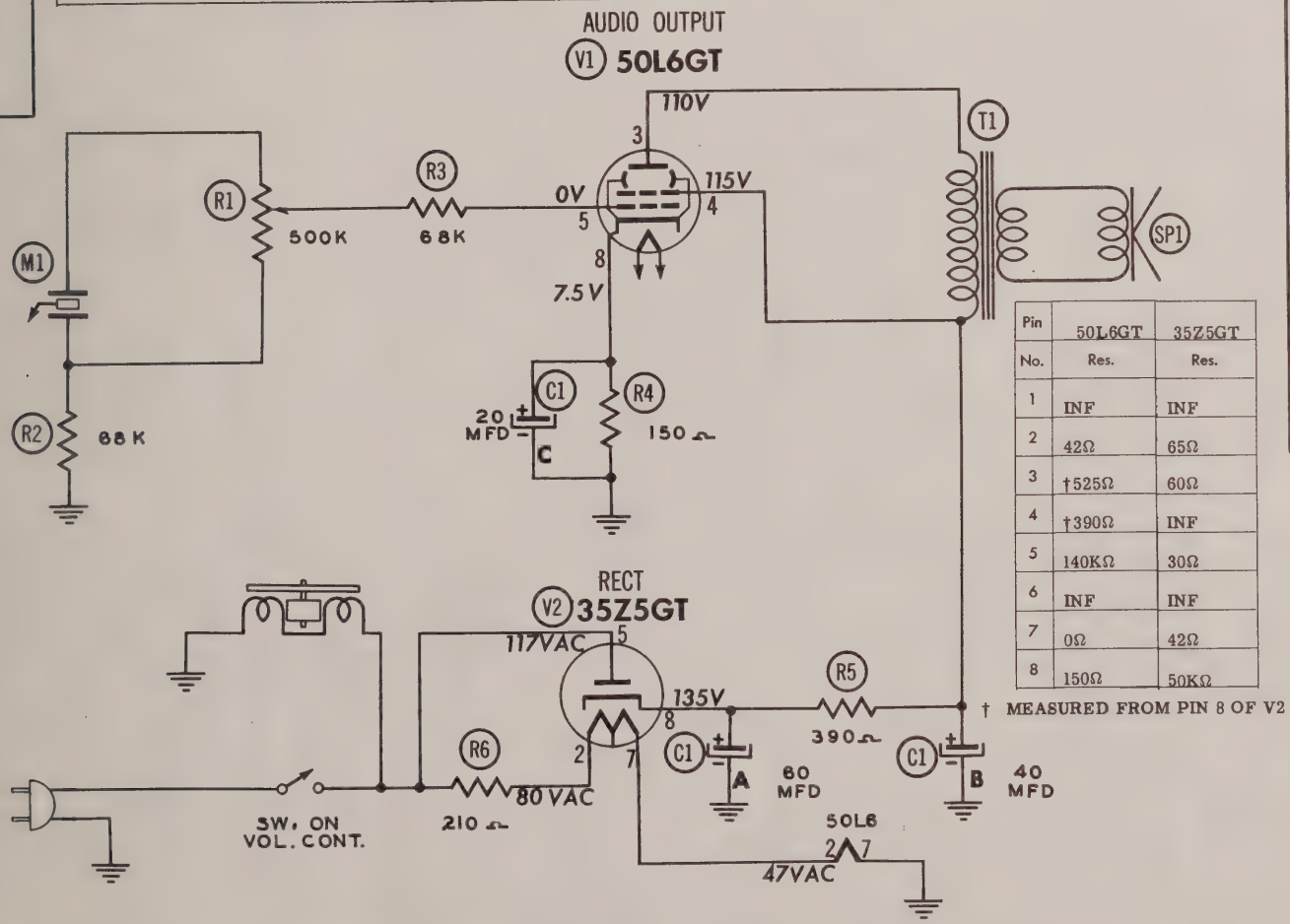
1-DC Voltage measurements are 20,000 ohms per volt, AC Voltages measured at 1000 ohms per ovolt.
2-Socket connections are shown as bottom views.
3-Measured values are from socket pin to common negative.
4-Line voltage maintained at 117 volts for voltage readings.
5-Nominal tolerance on component values makes possible a variation of ±15% in voltages and resistance readings.
6-All controls at minimum, proper output load connected.

HUDSON ELECTRONICS
MODEL 39HB

TRADE NAME	Hudson Electronics Model 39HB
MANUFACTURER	Hudson Electronics Corp., 110 E. Third St., Mt. Vernon, N.Y.
TYPE SET	AC Operated Audio Amplifier With 3 Speed Manual Record Player
TUBES (Two)	Types 50L6GT Audio Output, 35Z5GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .170 Amp. @ 117 Volts AC



Pin No.	50L6GT Res.	35Z5GT Res.
1	INF	INF
2	42Ω	65Ω
3	†525Ω	60Ω
4	†390Ω	INF
5	140KΩ	30Ω
6	INF	INF
7	0Ω	42Ω
8	150Ω	50KΩ

† MEASURED FROM PIN 8 OF V2

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: HUDSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	Audio Output	50L6GT	50L6GT	7AC	
V2	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: HUDSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	■60	150		AFH3-81		UP6415C		FP311	TVL-3430	
B	▲40	150								
C	20	25								

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HUDSON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	BA012-051	Q13-133	AG-60-S	B-60-S	U-48	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: HUDSON PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R2	68KΩ	½		BTS-68K	
R3	68KΩ	½		BTS-68K	
R4	150Ω	½		BTS-150	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: HUDSON PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R5	390Ω	2		BTB-390	
R6	210Ω	2			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: HUDSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	1.8KΩ	3.4Ω	135Ω	.34Ω		A-3332 ①	A-2928 ①	RO-2 ①	S-2X ①	① Bend mtg. tabs down file out slots, mount on original mtg. bracket.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: HUDSON PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	5"	PM	3.4Ω		ST-105 Mod. P5-X	5A07	

PHONO CARTRIDGE

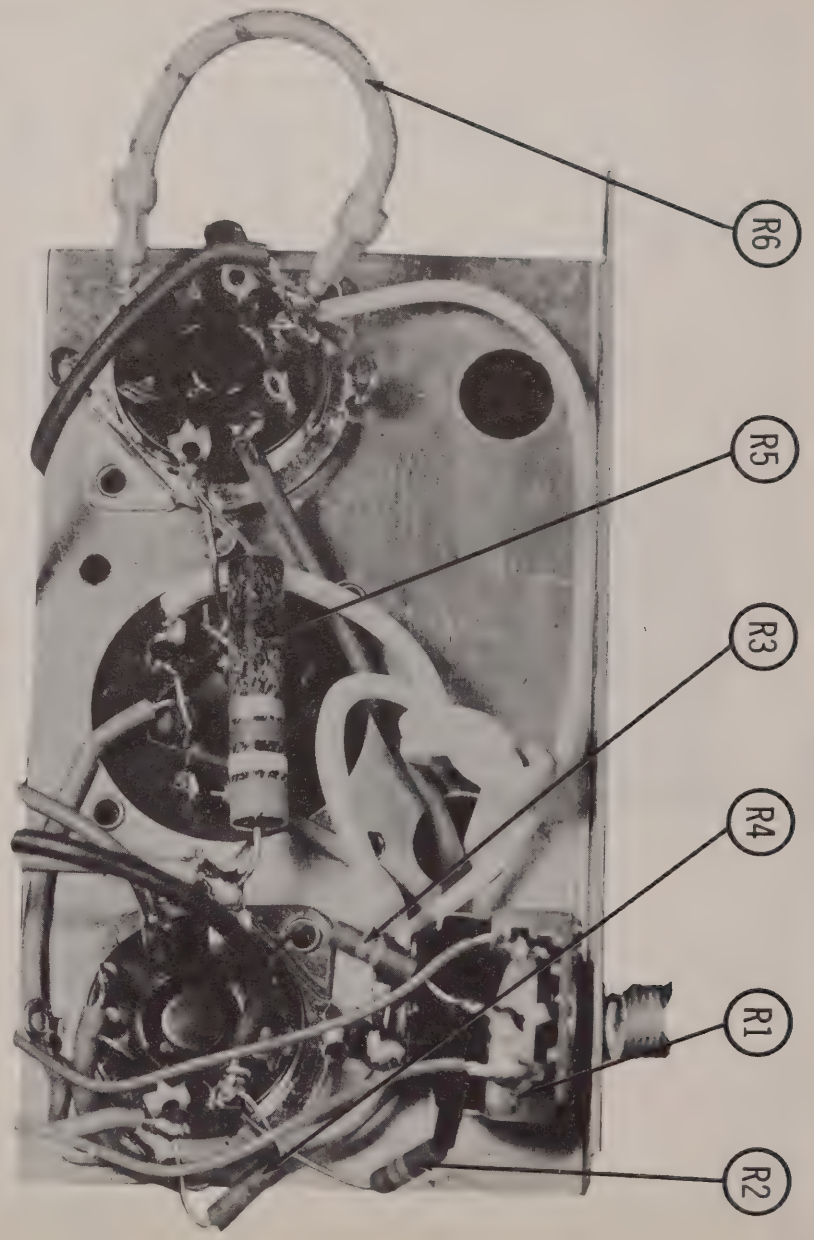
ITEM No.	REPLACEMENT DATA: HUDSON PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	SHURE PART No. CARTRIDGE	SHURE PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	REMARKS
M1						*25H60		* Tone Arm

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA: HUDSON PART No.	WALCO PART No.	JENSEN PART No.	REMARKS
M2		WS400-2	J-752 or J-152	

CHASSIS—BOTTOM VIEW



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

MASCO
MODEL IM-10

MASCO
MODEL IM-10

TRADE NAME	Masco Model IM-10
MANUFACTURER	Mark Simpson Mfg. Co., Inc., 32-28 49th. St., Long Island City 3, N.Y.
TYPE SET	AC/DC Operated Inter-Communication Master Unit.
TUBES (TWO)	Types 12SJ7 Pre. Amp., 50L6GT Audio Output
POWER SUPPLY	110-120 Volts AC/DC RATING .25 Amp @ 117 Volts AC

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PARTS LIST AND DESCRIPTIONS

MASCO
MODEL IM-10

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		MASCO PART No.	STANDARD REPLACEMENT		
V1	Pre Amplifier	12SJ7	12SJ7	8N	
V2	Audio Output	50L6GT	50L6GT	7AC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MASCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	40	150		PRS150/50-30-20		EDL44215		3N532	TVA-3448	Red
B	40	150								Red
C	20	150								Blue
C2	10	50		PRS50/10		BR105		TC32	TVA-1304	
C3	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C4	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C5	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C6	470			SI470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C7	.1	600		689ZGXY-1		PJ6P1		PT601	6TM-P1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MASCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	34-011-182	Q13-133	AG-60-Z	B-60-S	U-48	Volume
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MASCO PART No.	IRC PART No.	
R2	18Ω	½			
R3	15 Meg	½		BTS-15Meg	
R4	1 Meg	½		BTS-1Meg	
R5	270KΩ	½		BTS-270K	
R6	150Ω	½		BTS-150	
R7	2200Ω	½		BTS-2200	

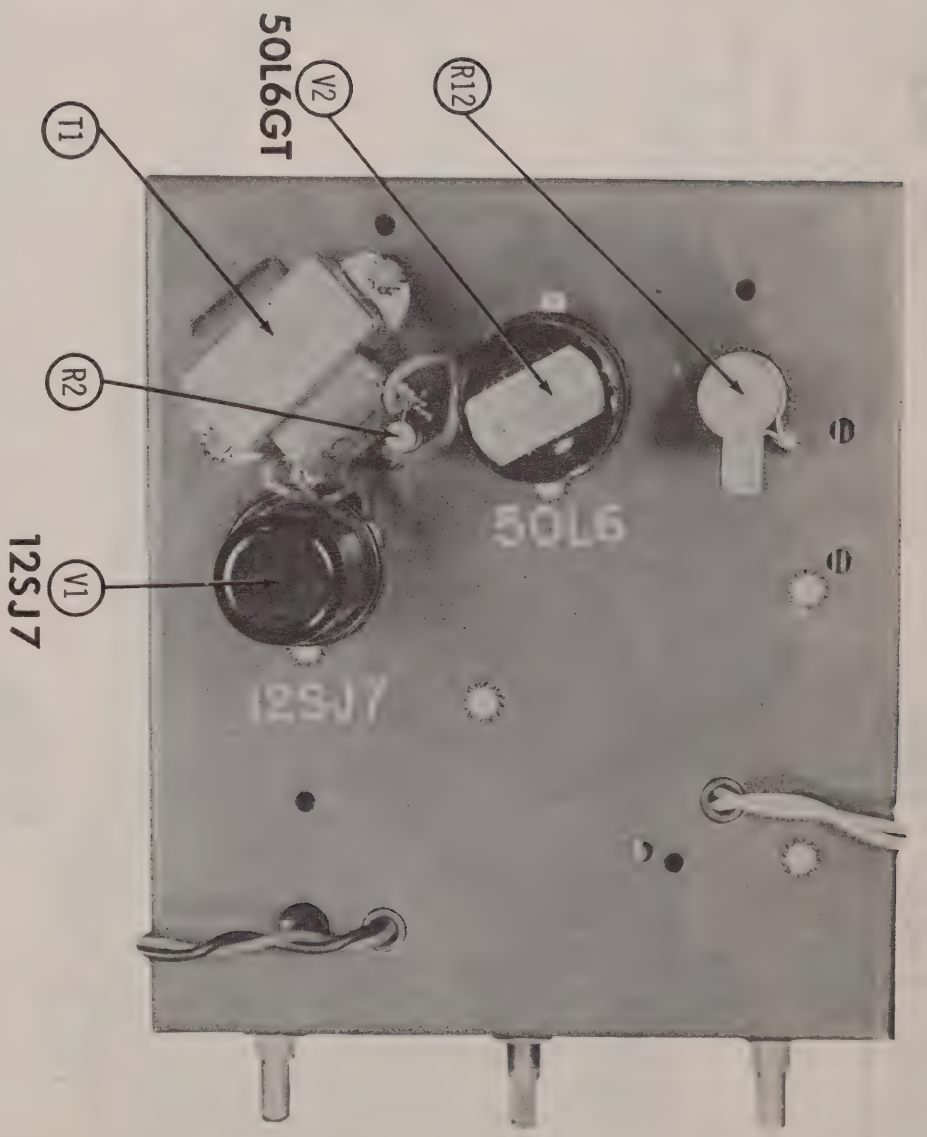
ITEM No.	RATING		REPLACEMENT DATA		NOTE
	OHMS	WATT	MASCO PART No.	IRC PART No.	
R8	47KΩ	½		BTS-47K	
R9	150Ω	½		BTS-150	
R10	47KΩ	½		BTS-47K	
R11	47Ω	1			
R12	390	10		1 3/4A-400Ω	Note

Note-Some models use a 20Ω resistor in this application.

TRANSFORMER (INPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		MASCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	11.8Ω	15KΩ	.57Ω	700Ω	13-IN-20					

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		MASCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T2	1.66KΩ	11.8Ω	132Ω	1.18Ω	13-0-2C		A-2902			

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	MASCO PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	11.8Ω	4AM-61 42M-2 ①		4A07Z12	① Alternate speaker PM

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT	MASCO PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	
M1	.053		NC5	5M1	1004A	6S100	

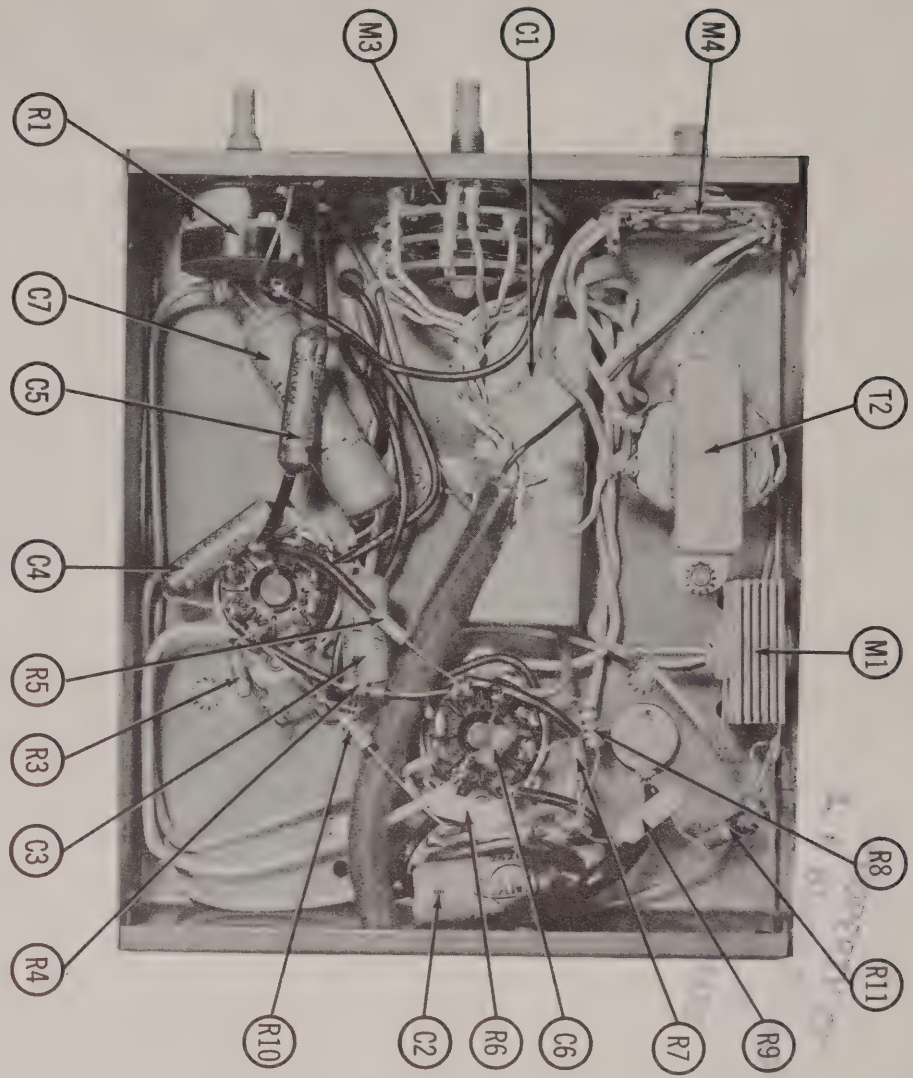
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					MASCO PART No.		
M2	Bayonet			White			Neon Type NE51

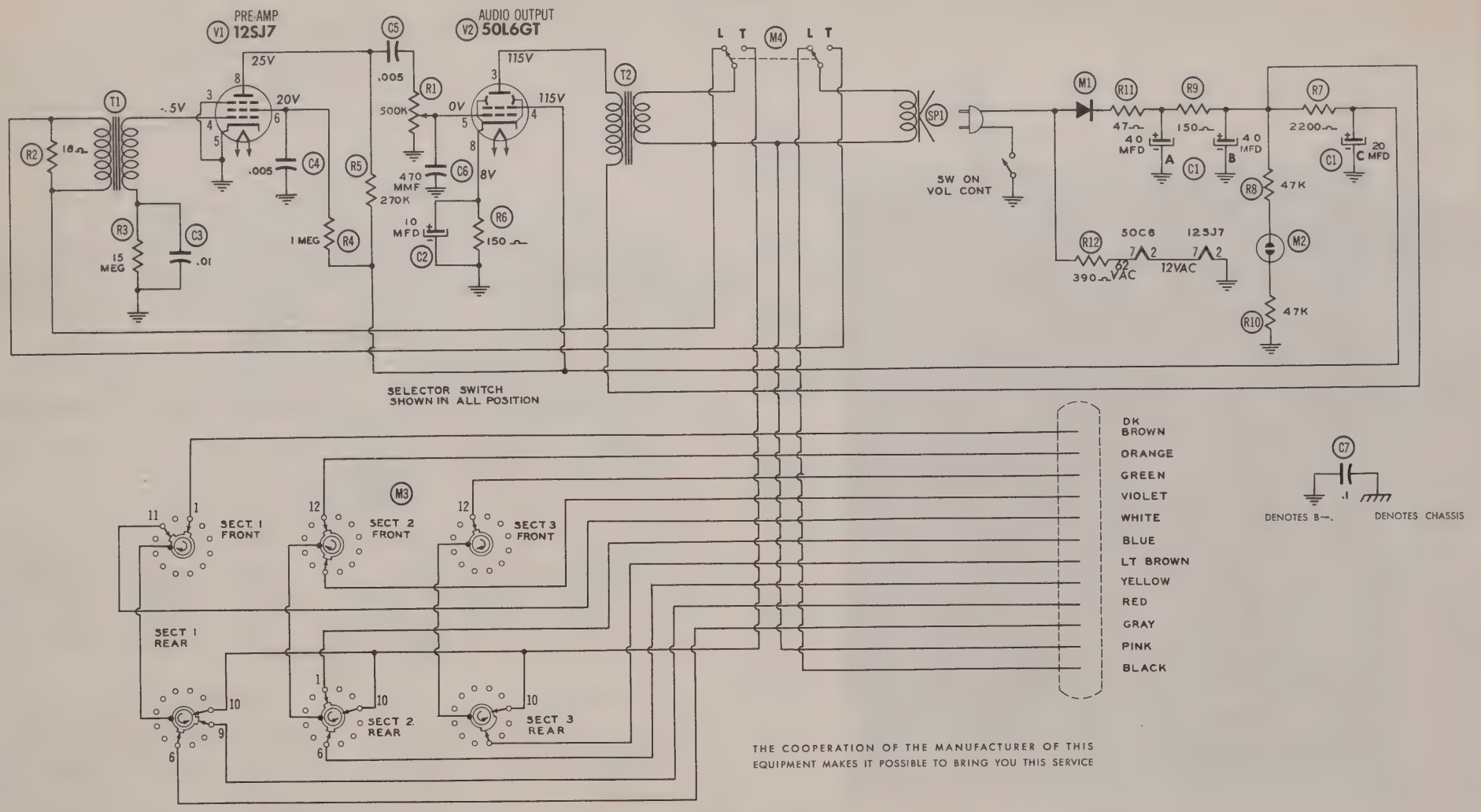
MISCELLANEOUS

ITEM No.	PART NAME	MASCO PART No.	NOTES
M3	Switch		Station Selector
M4	Switch		Talk-Listen

CHASSIS—BOTTOM VIEW



MASCO MODEL 1M-10



THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12SJ7	0Ω	0Ω	0Ω	15Meg	0Ω	†1Meg	12Ω	†270KΩ	
V 2	50L6GT	0Ω	12Ω	†302Ω	†3.4KΩ	0Ω	†47KΩ	62Ω	150Ω	

ALL MEASUREMENTS TAKEN WITH STATION SELECTOR IN "ALL" POSITION
LISTEN & TALK SWITCH IN "LISTEN" POSITION
† MEASURED FROM OUTPUT OF M1

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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186-8

1-DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2-Socket connections are shown as bottom views.
3-Measured values are from socket pin to common negative.
4-Line voltage maintained at 117 volts for voltage readings.
5-Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6-All controls at minimum proper output load connected.

PHOTOFACT* Folder

MECK MODELS JM-717C, T, JM-720C, T, JM-721C, CD, MM-617C, T, MM-620C, T (Ch. 9032)

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MODEL JM-717T

MECK MODELS JM-717C, T, JM-720C, T, JM-721C, CD, MM-617C, T, MM-620C, T (Ch. 9032)

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DATE 11-52 SET 186 FOLDER 9

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*TRADE MARK

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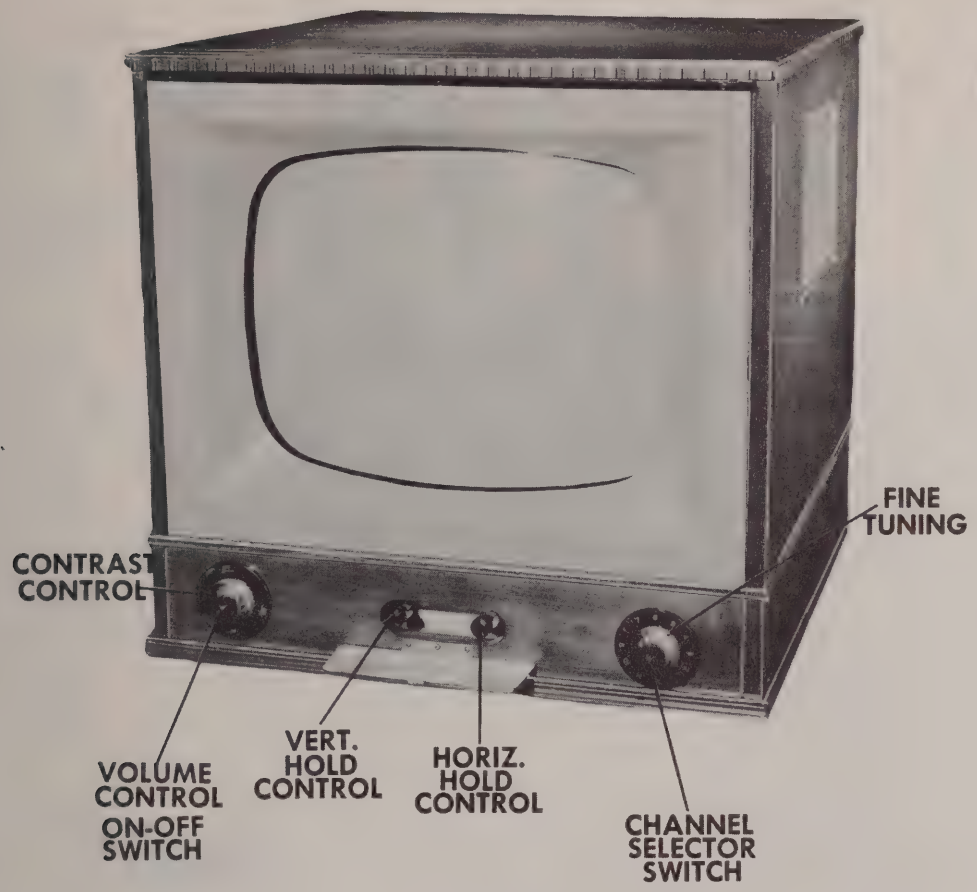

MECK JM-717T

TRADE NAME	Meck Models MM-617T, MM-617C, MM-620T, MM620C, JM-717T, JM-717C, JM-720T, JM-720C, JM-721C, JM-721CD (Ch. 9032)
MANUFACTURER	John Meck Industries, Plymouth, Ind.
TYPE SET	Television Receiver
TUBES	Twenty
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	1.6 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13

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MECK MODELS JM-717C, T, JM-720C, T, JM-721C, CD, MM-617C, T, MM-620C, T (Ch. 9032)

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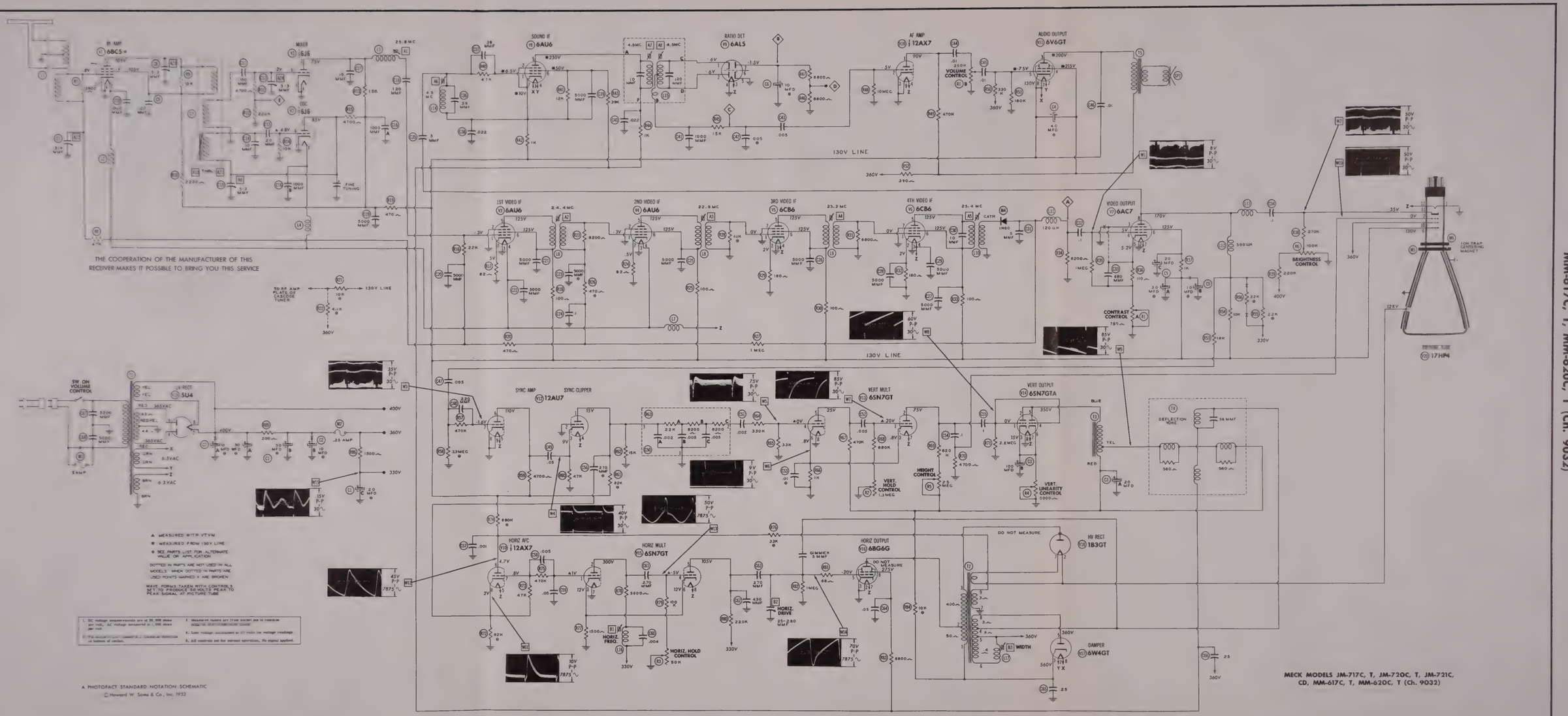
RF AMP V1 6BC5
MIXER V2 6J6
OSC V3 6J6
25.8MC
SOUND IF V9 6AU6
RATIO DET V9 6AL5
AF AMP V10 12AX7
AUDIO OUTPUT V11 6V6GT
VOLUME CONTROL
130V LINE
1ST VIDEO IF V2 6AU6 2.4.4MC
2ND VIDEO IF V4 6AU6 22.8MC
3RD VIDEO IF V5 6CB6 23.2MC
4TH VIDEO IF V6 6CB6 25.4MC
VIDEO OUTPUT V7 6AC7
CONTRAST CONTROL
BRIGHTNESS CONTROL
ION TRAP CENTERING MAGNET
CRT V20 17HP4
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
TO RF AMP PLATE OF CASCODE TUNER
SW ON VOLUME CONTROL
RECT 5U4
SYNC AMP V17 12AU7
SYNC CLIPPER
VERT MULT V13 6SN7GT
VERT OUTPUT V14 6SN7GTA
HEIGHT CONTROL
VERT. HOLD CONTROL
VERT. LINEARITY CONTROL
DEFLECTION YOKE
HORIZ AFC V19 12AX7
HORIZ MULT V15 6SN7GT
HORIZ OUTPUT V16 6BG6G
HORIZ. DRIVE
HORIZ FREQ.
HORIZ. HOLD CONTROL
HV RECT V18 1B3GT
WIDTH
DAMPER V17 6W4GT
DO NOT MEASURE
▲ MEASURED WITH VTVM
● MEASURED FROM 130V LINE
◆ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DOTTED IN PARTS ARE NOT USED IN ALL MODELS WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 80 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements are at 20,000 ohms per volt, AC voltage measured at 1,000 ohms per volt.
2. [illegible]
3. Measured values are from socket pin to common [illegible]
4. Line voltage measurement at 117 volts for voltage readings
5. All controls set for normal operation, No signal applied.
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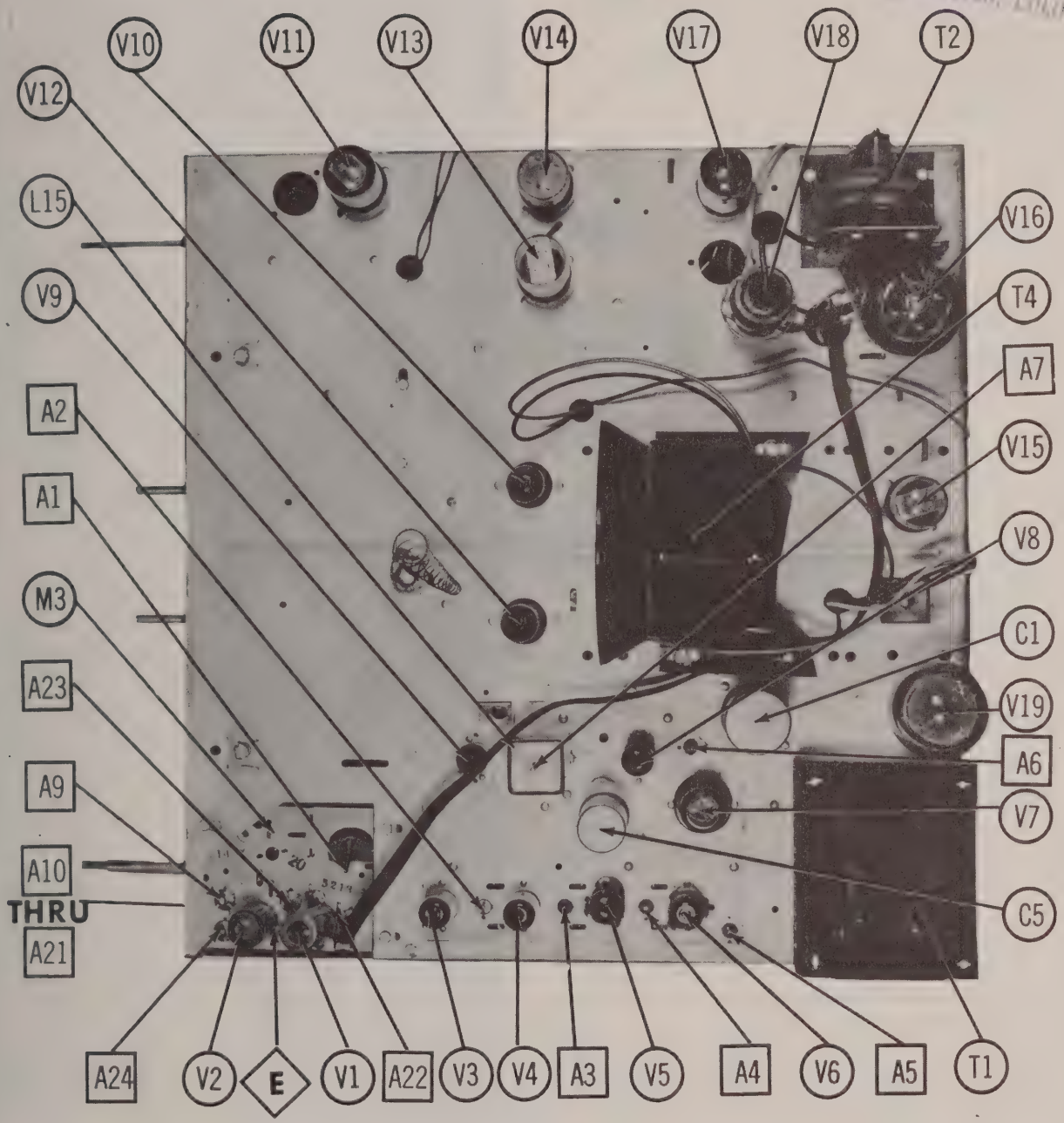
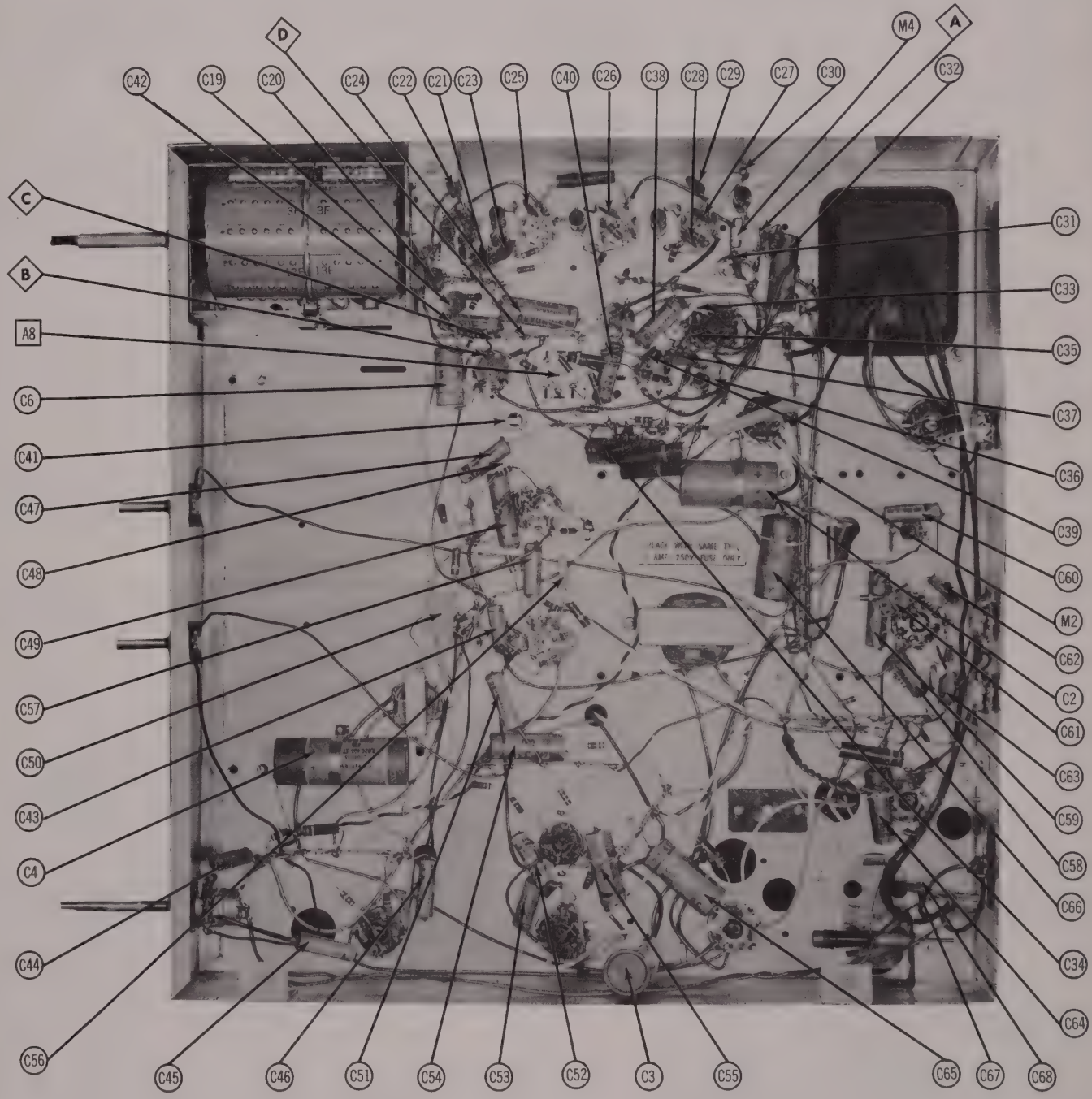
MECK MODELS JM-717C, T, JM-720C, T, JM-721C, CD, MM-617C, T, MM-620C, T (Ch. 9032)

MECK MODELS JM-717C, T, JM-720C, T, JM-721C, CD, MM-617C, T, MM-620C, T (Ch. 9032)

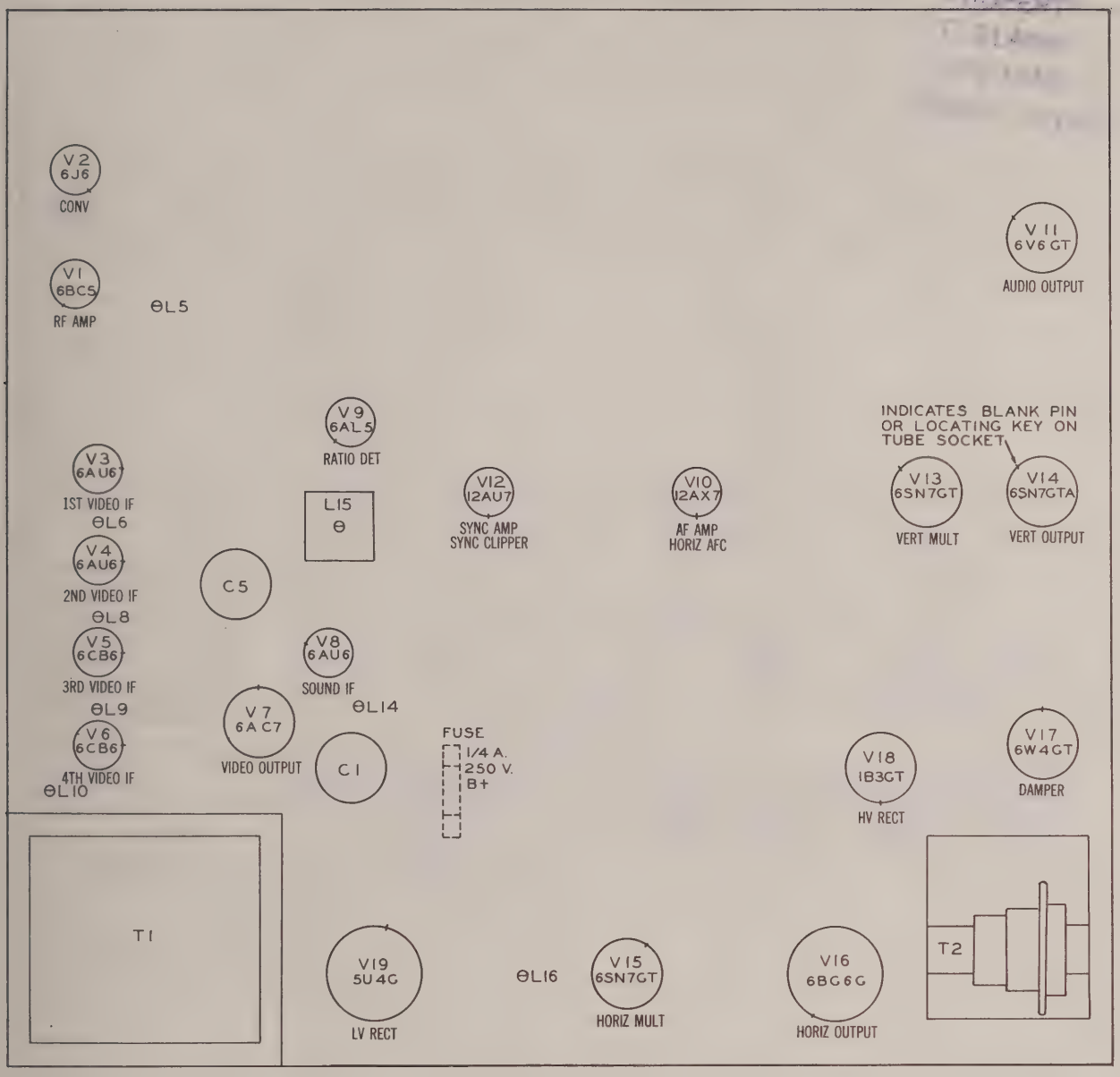


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW- CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TOP VIEW

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V19, Fuse (M1, M2)

LOSS OF PICTURE OR SOUND
No pic, No sound, Has Raster - V2, V3, V4, V5, V6, V7, V11
No pic, No Sound, Has Snow - V1, V2, V3
No pic, Has sound, Has raster - V7, V20
Has pic, No sound - V8, V9, V10, V11

SYNC FAILURE
No vert. sync - V12, V13
No horiz. sync - V12, V10, V15
No Vert. or horiz. sync - V12

SWEEP FAILURE
No raster, has sound - V15, V16, V17, V18, V20
No vertical deflection - V14
Poor vert. linearity or foldover - V13, V14
Poor horiz. linearity or foldover - V15, V16, V17
Narrow picture - V15, V16, V17, V18, V19
Vert. off freq. - V12, V13
Horiz. off freq. - V12, V10, V15

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal multivibrator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube, V2, and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Earlier productions sets required that the Video IF strip be aligned at differenct frequencies than the later sets. The earlier sets can be identified by the following circuit differences:
R28 is 6800Ω instead of 10KΩ
R26 and C23 are omitted.
Frequencies at which the earlier sets should be aligned will be indicated by an asterick (*).

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	25.8MC 25.9MC *	Any	DC probe to point (A)	A1	Adjust for maximum deflection.
2.	"	"	24.4MC 25.6MC *	"	"	A2	"
3.	"	"	22.8MC 23.1MC *	"	"	A3	"
4.	"	"	23.2MC 22.9MC *	"	"	A4	"
5.	"	"	25.4MC 24.3MC *	"	"	A5	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to an ungrounded tube shield floating over dummy converter tube.	24MC (10MC Swp)	21.6MC 22.7MC 26.1MC	Any	Vert. amp. thru 10KΩ to point (A). Low side to chassis.		Check for response curve similar to fig.1 If necessary, retouch A1 thru A5 for desired response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.001MFD	High side to point (A) Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point (B) Common to chassis.	A6, A7	Adjust for maximum deflection. Attenuate generator to maintain not more than 5 volts at VTVM.
8.	"	"	"	"	DC probe to point (C) Common to chassis.	A8	Adjust for zero reading. A positive and negative will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.001MFD	High side to point (A). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp. to point (B). Low side to chassis.	A6, A7	Disconnect stabilizer capacitor C6. Adjust for curve of maximum amplitude and symmetry as in fig. 2.
8.	"	"	"	"	"	Vert. amp. to point (C). Low side to chassis.	A8	Reconnect capacitor C6. Adjust so that 4.5MC occurs at center of crossover lines as in fig. 3. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

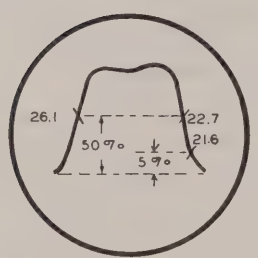


FIG.1

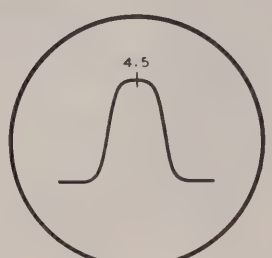


FIG. 2

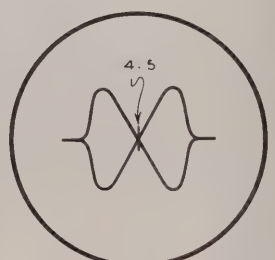


FIG. 3

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary.
If the oscillator seems to be off frequency approximately the same amount for the majority of the channels it may be possible to correct them in one step using A9. It should be noted that this is an all channel oscillator circuit adjustment and should not be used to correct any individual channel.
If adjustment of A9 will not bring all channels well within the range of the fine tuning control it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel adjustment screws are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp. to point (A). Low side to chassis.	A10	Adjust to place video marker at 50% on high frequency side of response curve as in fig. 4. Sound marker should be at 5% or less.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A11	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A12	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A13	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A14	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A15	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A16	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A17	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A18	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A19	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A20	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A21	

RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to point (E). Low side to chassis.	A22, A23 A24	Adjust for curve of maximum amplitude and symmetry, similar to fig. 5, with markers above 90%.
11.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response as in fig. 5. If markers fall below 70% on any channel make compromise adjustments of A22, A23, and A24 with channel switch set to that channel then recheck all other channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

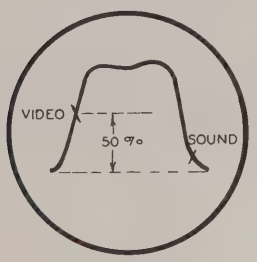


FIG. 4

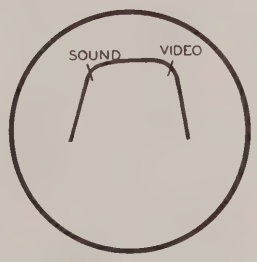
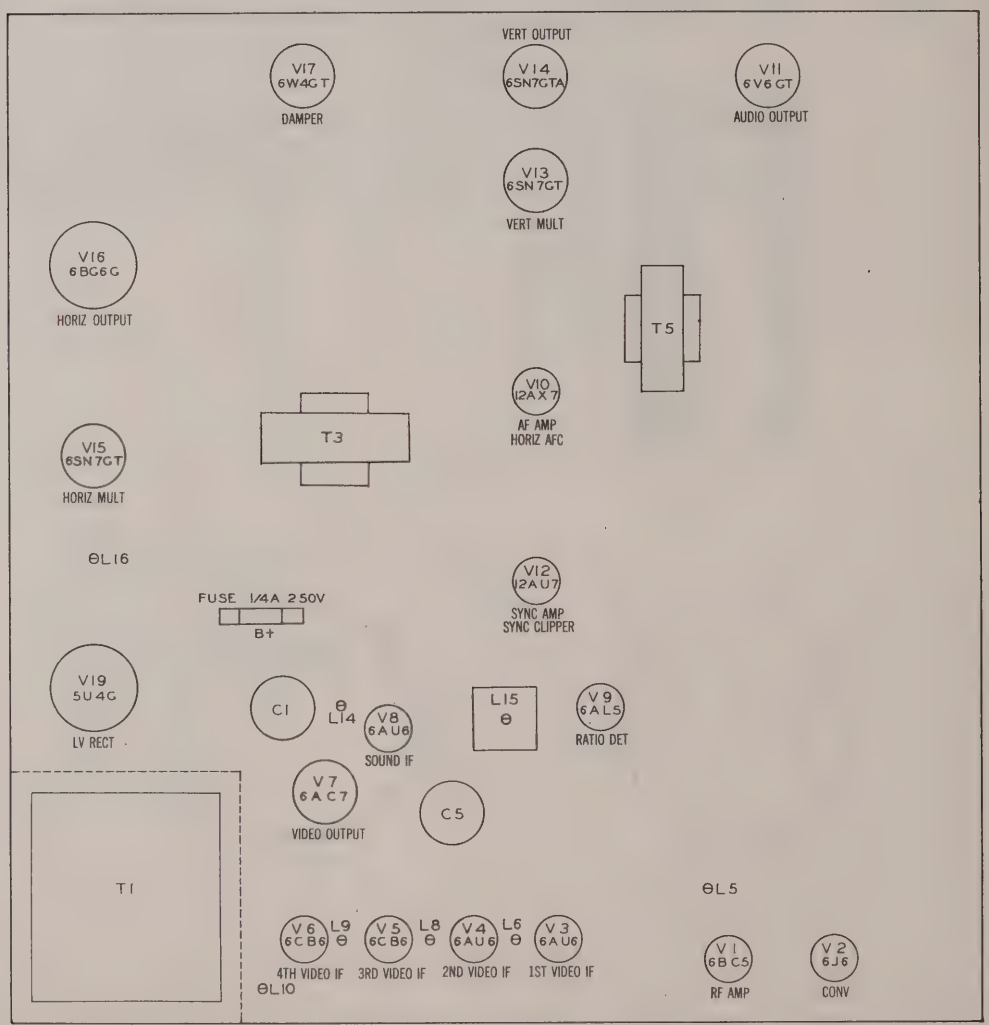


FIG. 5

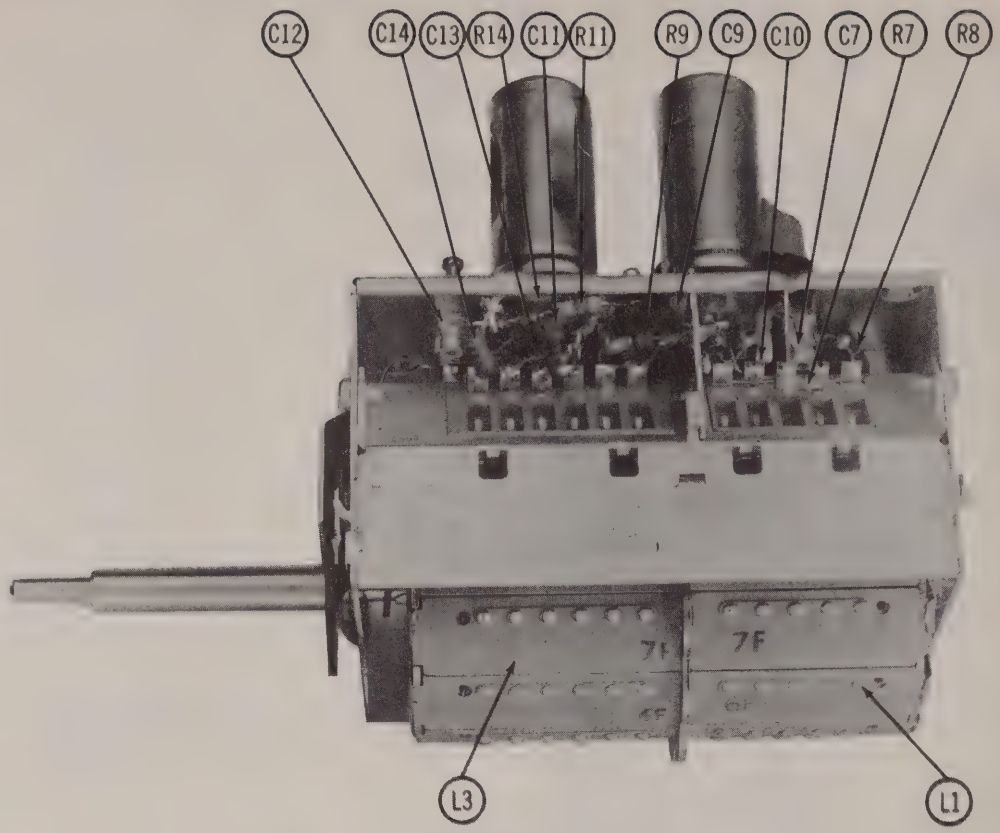
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC6	1 Meg	0Ω	.1Ω	0Ω	■2.7KΩ	■2.7KΩ	0Ω		
V 2	6J6	■5.2KΩ	■15KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6AU6	1 Meg	0Ω	0Ω	.1Ω	■100Ω	■100Ω	82Ω		
V 4	6AU6	1 Meg	0Ω	0Ω	.1Ω	■100Ω	■100Ω	82Ω		
V 5	6CB6	.2Ω	180Ω	0Ω	.1Ω	■100Ω	■100Ω	0Ω		
V 6	6CB6	.2Ω	180Ω	0Ω	.1Ω	■100Ω	■100Ω	0Ω		
V 7	6AC7	0Ω	0Ω	0Ω	1 Meg	400Ω	■1KΩ	.1Ω	†12KΩ	
V 8	6AU6	■48KΩ	■1KΩ	■0Ω	■.1Ω	†1.2KΩ	■1KΩ	■1KΩ		
V 9	6AL5	INF	INF	.1Ω	0Ω	0Ω	INF	13KΩ		
V 10	12AX7	†470KΩ	10Meg	0Ω	.1Ω	.1Ω	33KΩ	130KΩ	82KΩ	0Ω
V 11	6V6GT	INF	■.1Ω	†840Ω	†590Ω	120KΩ	INF	■0Ω	50KΩ	
V 12	12AU7	12KΩ	0Ω	47KΩ	.1Ω	.1Ω	■4.7KΩ	3.8Meg	0Ω	0Ω
V 13	6SN7GT	1.6Meg	#1.8 Meg	1KΩ	33KΩ	#480KΩ	1KΩ	.1Ω	0Ω	
V 14	6SN7GTA	2.2Meg	#11KΩ	1.7KΩ	2.2 Meg	#11KΩ	1.7KΩ	.1Ω	0Ω	
V 15	6SN7GT	600KΩ	†7.3KΩ	1.5KΩ	120KΩ	†220KΩ	1.5KΩ	0Ω	.1Ω	
V 16	6BG6G	INF	0Ω	0Ω	INF	1 Meg	INF	.1Ω	†7KΩ	Top Cap #50Ω
V 17	6W4GT	INF	INF	180KΩ	INF	†210Ω	INF	■.1Ω	■0Ω	
V 18	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								Top Cap #450Ω
V 19	5U4G	INF	50KΩ	INF	44Ω	INF	43Ω	INF	50KΩ	
V 20	17HP4	0Ω	4.7KΩ	PIN 6 ■0Ω	PIN 10 †200Ω	PIN 11 340KΩ	PIN 12 .1Ω			

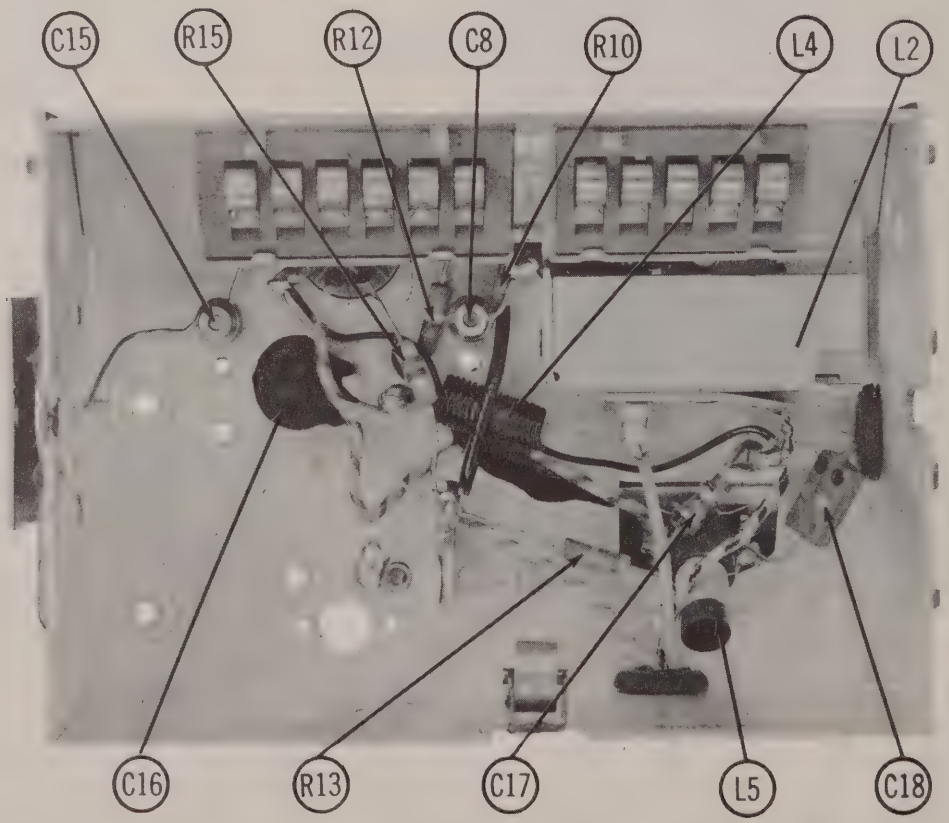
ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 2 OF V19
# MEASURED FROM PIN 3 OF V17
■ MEASURED FROM 130V DC LINE



BOTTOM VIEW

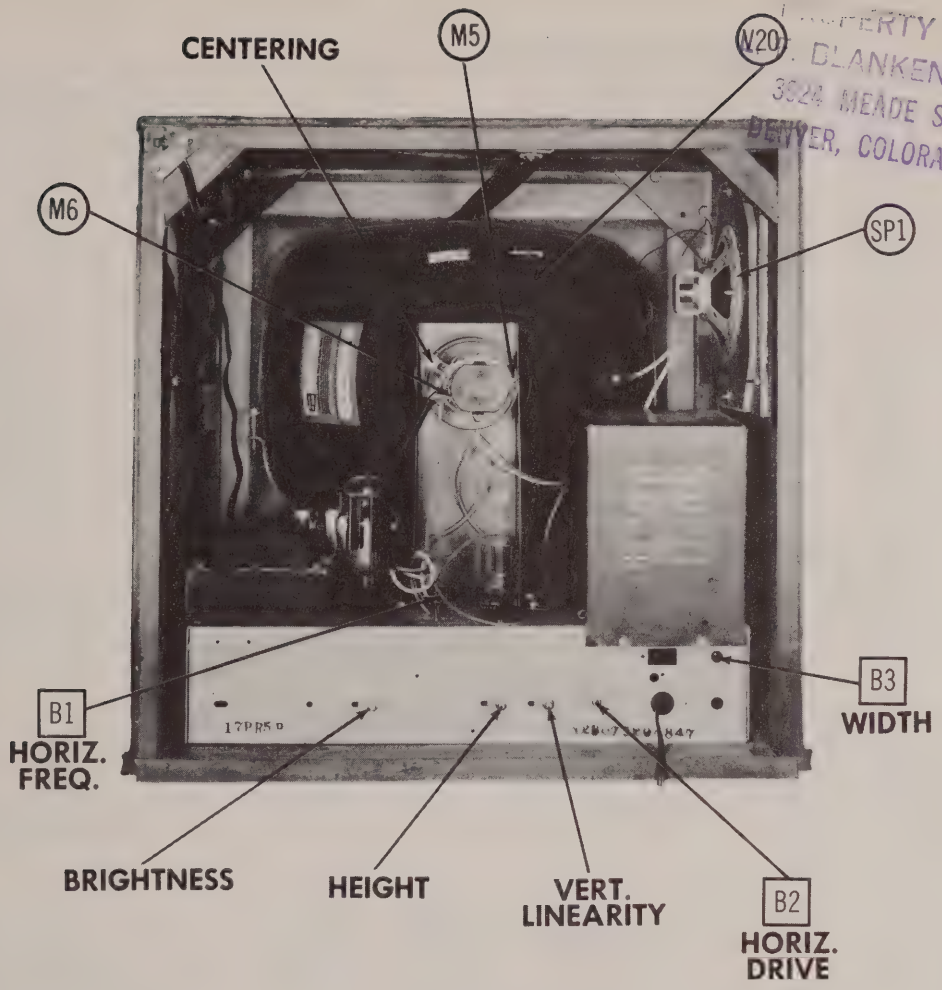


RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

PROPERTY OF
J. BLANKENSHIP
3324 MEADE ST.
DENVER, COLORADO



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer (B2) as far as possible in a counter clockwise direction without the presence of a vertical white line or compression of the center of the picture. If neither of these indications appear, set B2 to the minimum capacity consistent with sufficient trimmer screw pressure and good horizontal linearity.

Set the width control slug (B3) for a picture slightly wider than necessary to fill the picture mask horizontally.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on type control knobs from front panel.
2. Remove 7 wood screws. Remove rear cover.
3. Disconnect built-in antenna and speaker.
4. Remove 2 wood screws. Remove antenna bracket.
5. Remove 1 wood screw. Remove CRT brace.
6. Remove 4 chassis bolts. Remove chassis.
7. Remove 2 speaker nuts. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6BC5	6BC5	7BD	
B	RF Amplifier	6AG5	6AG5	7BD	
C	RF Amplifier	6CB6	6CB6	7CM	
V2	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6AU6	6AU6	7BK	
V4	2nd. Video IF Amp.	6AU6	6AU6	7BK	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	4th. Video IF Amp.	6CB6	6CB6	7CM	
V7	Video Output	6AC7	6AC7	8N	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Ratio Detector	6AL5	6AL5	6BT	
V10	AF Amplifier-Horiz. AFC	12AX7	12AX7	9A	
V11	Audio Output	6V6GT	6V6GT	7AC	
V12	Sync Amplifier-Sync Clipper	12AU7	12AU7	9A	
V13	Vert. Mult.	6SN7GT	6SN7GT	8BD	
V14	Vert. Output	6SN7GTA	6SN7GTA	8BD	
V15	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V16	Horiz. Output	6BG6G	6BG6G	5BT	
V17	Damper	6W4GT	6W4GT	4CG	
V18	HV Rectifier	1B3GT	1B3GT	3C	
V19	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: SYLVANIA PART No.		RTMA BASE TYPE	NOTES
20	17HP4	17HP4		12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MECK PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲30	475		AFH3-38		UPT33245		FP396	TVL-3840	Note 1
B	■30	475								Note 1
C	▲20	475								Note 1
C2A	10	450		PRS450/10-10		BRD1145B		TCD72	TVA-2722	Note 2
B	10	450								Note 2
C3A	20	450	CLC-10050	AFH2-93		UPT1150-Y10		TC75	TVA-1709	
B	100	25				225		TC2501	TVA-1207	
C4	40	450		PRS450/40		BR4045A		TC78	TVA-1712	Note 3
C5A	■30	350		AFH3-117		UP3135-225		FP330.7	TVL-2663	Note 4
B	▲10	350							TVA-1608	Note 4
C	20	250								
C6	10	50		PRS50/ 10		BR105		TC32	TVA-1304	Note 5
C7	3-9				829-10					
C8	.5-3				829-3			CT565A		
C9	120			SI120	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C10	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C11	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C12	.5-3				829-3			CT565A		
C13	20			SI20NP0	TCZ-20		NP0K-200	ZT-542	5TCC-C2	
C14	10			SI10N750	TCN-10		N750K-100	NT-541	5TCC-C1	
C15	.5-3				829-3			CT565A		
C16A	1000			BPD-2X001	DD-2-102	TM5DD1	812-001	DCD-521	5HK-2D1	
B	1000									
C17	10			SI10NP0	TCZ-10		NP0K-100	ZT-541	5TCC-C1	
C18	120			SI120	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C19	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C20	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C21	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C22	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C23	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note 6
C24	.1	600		P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C25	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C26	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C27	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C28	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C29	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C30	10			SI10	D6-100	5W5Q1	GP1K-100	UC-541	5GA-Q1	
C31	5			SI5	TCZ-4.7	5W5V5	GP1K-050	ZT-555	5GA-V5	
C32	.1	600		P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C33	680			SI680	D6-681	5R5T7	GP2K-681	UC-5368	5GA-T68	
C34	.1	600		P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C35	5			SI5	TCZ-4.7	5W5V5	GP1K-050	ZT-555	5GA-V5	
C36	39	500		1468-00004	D6-390	5W5Q4	GP1K-39 0	MC223	1FM-44	
C37	39	500		1468-00004	D6-390	5W5Q4	GP1K-390	MC223	1FM-44	
C38	.022	600		P688-022	DF-203	PTE6S22		PT6122	6TM-S22	
C39	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C40	.022	600		P688-022		PTE6S22		PT6122	6TM-S22	
C41	1000			SI1000	D6- 102	TM5D1	GP2L-102	UC-521	5HK-D1	Note 8
C42	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C43	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C44	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C45	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C46	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C47	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C48	220		CC-15221	SI220	D6-221	5W5T25	GP2K-221	UC-5332	5GA-T22	
C49	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C50A	.002			P688-002		PTE6D2		PT622		
B	.005		●CMX-10012	P688-005	●PC-100	PTE6D5	●1405-01	PT625	●101C1	
C	.005			P688-005		PTE6D5		PT625		
C51	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C52	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MECK PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C53	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	Note 6
C54	.1	600		P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C55	.1	600		P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C56	270	500	CM-15271A	1469-0003		5R5T3		MCB241	MS-33	Note 7
C57	.001	600		P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C58	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C59	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C60	.004	400	CM-15392BS	1464-004		1DR5D4		MCB463	MS-24	
C61	270	500	CM-15271A	1469-0003		5R5T3		MCB241	MS-33	
C62	430	500	CM-15431A							
C63	270	500	CM-15271A	1469-0003		5R5T3		MCB241	MS-33	
C64	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C65	.25	600		684-25		PTE6P25		PT6025	6TM-P25	
C66	.25	600		684-25		PTE6P25		PT6025	6TM-P25	
C67	5000		CMX-10002	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C68	5000		CMX-10002	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	

Note 1. Some Models use 40MFD (C1A), 40MFD (C1B), 20MFD (C1C) (Part #CLC-10075)
Note 2. Not used when C1A and C1B are 40MFD.
Note 3. Some Models use 50MFD in this application (Part #CLA-10087A)
Note 4. C5A is 40MFD and C5B is not used in some models. (Part #CLC-10074)
Note 5. Some Models ue 4MFD in this application.
Note 6. Not used in early production Models.
Note 7. Early production Models use a 430MMF in this application.
Note 8. Early production Models use a 3900MMF in this application.
● Items C50A, C50B, C50C, R63A, R63B, R63C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESIST-ANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	750Ω	½	VC-12127C	QJ-246 *	RTV-297	SBBT-682-S	WF751T251	Contrast Tap@ 500Ω-Panel
B	250KΩ	½					UR254A	Volume-Rear
C	Switch						US-26	Attach to R1B
R2A	1.3Meg	½	VC-12132	Q1I-138	AG-83-S	AB-69	U-155	Vert. Hold
B	Shaft		Not Req.	Not Req.	K8S-3	AK-4	Not Req.	Attach to R2A
R3A	50KΩ	½	VC-12131	Q1I-123	AG-44-S	AB-31	U-35	Horiz. Hold
B	Shaft		Not Req.	Not Req.	K8S-3	AK-4	Not Req.	Attach to R3A
R4A	5000Ω	½	VC-12120C	Q1I-114	AG-19-S	AB-10	SU-14	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R4A
R5A	2.5Meg	½	VC-12121D	Q1I-239	AG-84-S	AB-83	SU-565	Height
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R5A
R6A	100KΩ	½	VCA-12135	Q1I-128	AG-49-S	AB-40	SU-41	Brightness
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R6A

* CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B17-105X & P1-210 (Panel)
B13-130 & R2-226 (Rear) & SWITCH 76-1.

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: MECK PART No.	IRC PART No.	NOTES
R7	3900Ω	½		BTS-3900	
R8	47KΩ	½			
R9	10KΩ	½		BTS-10K	
R10	2200Ω	½		BTS-2200	
R11	4700Ω	½		BTS-4700	
R12	220KΩ	½		BTS-220K	
R13	15KΩ	½		BTS-15K	
R14	10KΩ	½		BTS-10K	
R15	4700Ω	½		BTS-4700	
R16	22KΩ	½			
R17	82Ω	½		BTS-82	
R18	100Ω	½		BTS-100	
R19	470Ω	½		BTS-470	
R20	470Ω	½		BTS-470	
R21	10KΩ	2		BTB-10K	Note 1
R22	4.1KΩ	4			Note 1
R23	8200Ω	1			
R24	8.2Ω	½		BTS-82	
R25	100Ω	½		BTS-100	
R26	470Ω	½		BTS-470	Note 1
R27	1 Meg	½		BTS-1 Meg	
R28	10KΩ	½		BTS-10K	Note 7
R29	180Ω	½		BTS-180	
R30	100Ω	½		BTS-100	
R31	6800Ω	½			
R32	180Ω	½		BTS-180	
R33	100Ω	½		BTS-100	
R34	8200Ω	½		BTS-8200	
R35	1 Meg	½		BTS-1 Meg	
R36	110Ω-5%	½		BTS-110-5%	
R37	1000Ω	½		BTS-1000	
R38	270KΩ	½		BTS-270K	
R39	220KΩ	½		BTS-220K	
R40	47KΩ	½		BTS-47K	
R41	12KΩ	½		BTS-12K	
R42	1000Ω	½		BTS-1000	
R43	39KΩ	1		BTA-39K	
R44	1000Ω	½		BTS-1000	
R45	15KΩ	½		BTS-15K	
R46	6800Ω	½		BTS-6800	
R47	6800Ω	½		BTS-6800	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: MECK PART No.	IRC PART No.	NOTES
R48	10 Meg	½		BTS-10Meg	
R49	470KΩ	½		BTS-470K	
R50	330KΩ-5%	½		BTS-330K-5%	
R51	180KΩ-5%	½		BTS-180K-5%	
R52	390Ω	1		BTA-390	
R53	18KΩ	½		BTS-18K	
R54	10KΩ	½		BTS-10K	
R55	22KΩ	2		BTB-22KΩ	Note 2
R56	22KΩ	2		BTB-22K	Note 1
R57	470KΩ	½		BTS-470K	
R58	3.3Meg	½		BTS-3.3Meg	Note 3
R59	4700Ω	½		BTS-4700	
R60	47KΩ	½		BTS-47K	
R61	82KΩ	½		BTS-82K	Note 4
R62	15KΩ	½		BTS-15K	
R63A	22KΩ	½		BTS-22K	
B	8200Ω	½	●CMX-10012	BTS-8200	
C	8200Ω	½		BTS-8200	
R64	330KΩ	½		BTS-330K	
R65	33KΩ	½		BTS-33K	
R66	1000Ω	½		BTS-1000	
R67	470KΩ	½		BTS-470K	
R68	680KΩ	½		BTS-680K	
R69	820KΩ	½		BTS-820K	
R70	4700Ω	½		BTS-4700	
R71	2.2Meg	½		BTS-2.2Meg	
R72	82KΩ	½		BTS-82K	Note 4
R73	47KΩ	½		BTS-47K	
R74	680KΩ	½		BTS-680K	Note 8
R75	470KΩ	½		BTS-470K	
R76	33KΩ	½		BTS-33K	Note 5
R77	1500Ω	½		BTS-1500	
R78	5600Ω	½		BTS-5600	
R79	100KΩ	½		BTS-100K	
R80	220KΩ	½		BTS-220K	
R81	68Ω	½			
R82	1 Meg	½		BTS-1Meg	
R83	6800Ω	2		BRB-6800	
R84	10KΩ	2		BTB-10K	Note 6
R85	200Ω	10		1 3/4A-200	
R86	1500Ω	1		BTA-1500	

Note 1 Not used in all models.
Note 2 Some models use a 11KΩ resistor in this application.
Note 3 Some models use a 2.2Meg resistor in this application.
Note 4 Some models use a 100KΩ resistor in this application.
Note 5 Some models use a 47KΩ resistor in this application.
Note 6 Some models use a 8200Ω resistor in this application.
Note 7 Early production models use a 6800Ω resistor in this application.
Note 8 Early production models use a 1 Meg resistor in this application.
● Items R63A, R63B, R63C, C50A, C50B, C50C, are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: MECK PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC ▲ 1.6A	730VCT ▲ .175ADC	5VAC ▲ 3A	6.3VAC ▲ 1.2A SEC 4 6.3VAC ▲ 6.3A	TPC-10011 TPC-1010 ② TPC-10018 ②	P-8163 ①	P-3078	TP-36D ①	R-37BC

① Drill new mounting holes.
② Alternate transformer.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: MECK PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	450ΩTap ⑧ 50Ω	11.4Ω Tap ⑧ .4Ω 8.4Ω SEC. 2 35Ω SEC. 3 0Ω	THC-10003-E THC-10003 ⑦	A-8130 ⑧	HVO-7③④	TFB-5 ⑧	D-14 ⑧	Horiz Output Trans
T3	962Ω Tap ⑨ 12Ω		TOB10045E	A-8123	A-3037	TSO-8 ⑧	A-102X	Vert. Output Trans
T4A	16Ω		4YB10001B	DY-9A	MDF-70	TY-9	Y-17	Horiz. Deflection Coils
B	6Ω		YDB10001A ⑦					Vert. Deflection Coils

⑦ Alternate high voltage trans.
② Use with width coil WC-5.
③ Use with width coil MWC-1.
④ Drill new mtg. holes.
⑤ Use with width coil (with AGC winding) with approx. range of 4-29Milliheneries.
⑥ Use with width coil WC-11.
⑦ Alternate deflection yoke
⑧ Tie brown and blue leads together.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MECK PART No.	STANCOR PART No	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T5	4.25KΩ	3.3Ω	250Ω	.47Ω	TOC-10034 TOA-10031 ②	A-3877 ①	A-2930 ①	RO-9 ①	S-5X ①	① Drill one new mtg. hole. ② Alternate output transformer.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: MECK PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	5"	PM	3.3Ω	SRC-10026 SRC-10025 ①	ST-105 Mod. P5-X	5A07	① 8" PM speaker used on Models JM-717C, JM-720C and MM617C.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: MECK PART No.	MERIT PART No.	NOTES
L1	Ant. Coils	0Ω				
L2	Fil. Choke	0Ω				
L3	RF, Mixer Grid & Osc. Coils	0Ω				
L4	Fil. Choke	0Ω				
L5	1st. Video IF	.1Ω			TV-102	
L6	2nd. Video IF	.1Ω	.1Ω			
L7	Fil. Choke	0Ω				
L8	3rd. Video IF	.2Ω	.2Ω			
L9	4th. Video IF	.2Ω	.2Ω			
L10	5th. Video IF	.2Ω	.2Ω			
L11	Series Peaking Coil	7.5Ω			TV-181	120 Microhenries
L12	Shunt Peaking Coil	12.5Ω			TV-185	300 Microhenries
L13	4.5MC Trap	11.5Ω			TV-151	
L14	Sound IF	2.2Ω			TV-151	
L15	Ratio Det.	1Ω	.2ΩCT	TSB-10061	TV-115 †	Tertiary Winding - .2Ω
L16	Horiz. Osc.	65Ω			TV-163	
L17	Width Coil	.4Ω		TO-10023	MWC-2 *	

† Use adaptor plate
* Enlarge mtg. holes

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: MECK PART No. FUSE	MECK PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1* M2	3AG (P/T)	5A 1/4A 250V			318.250		GJV 1 4	

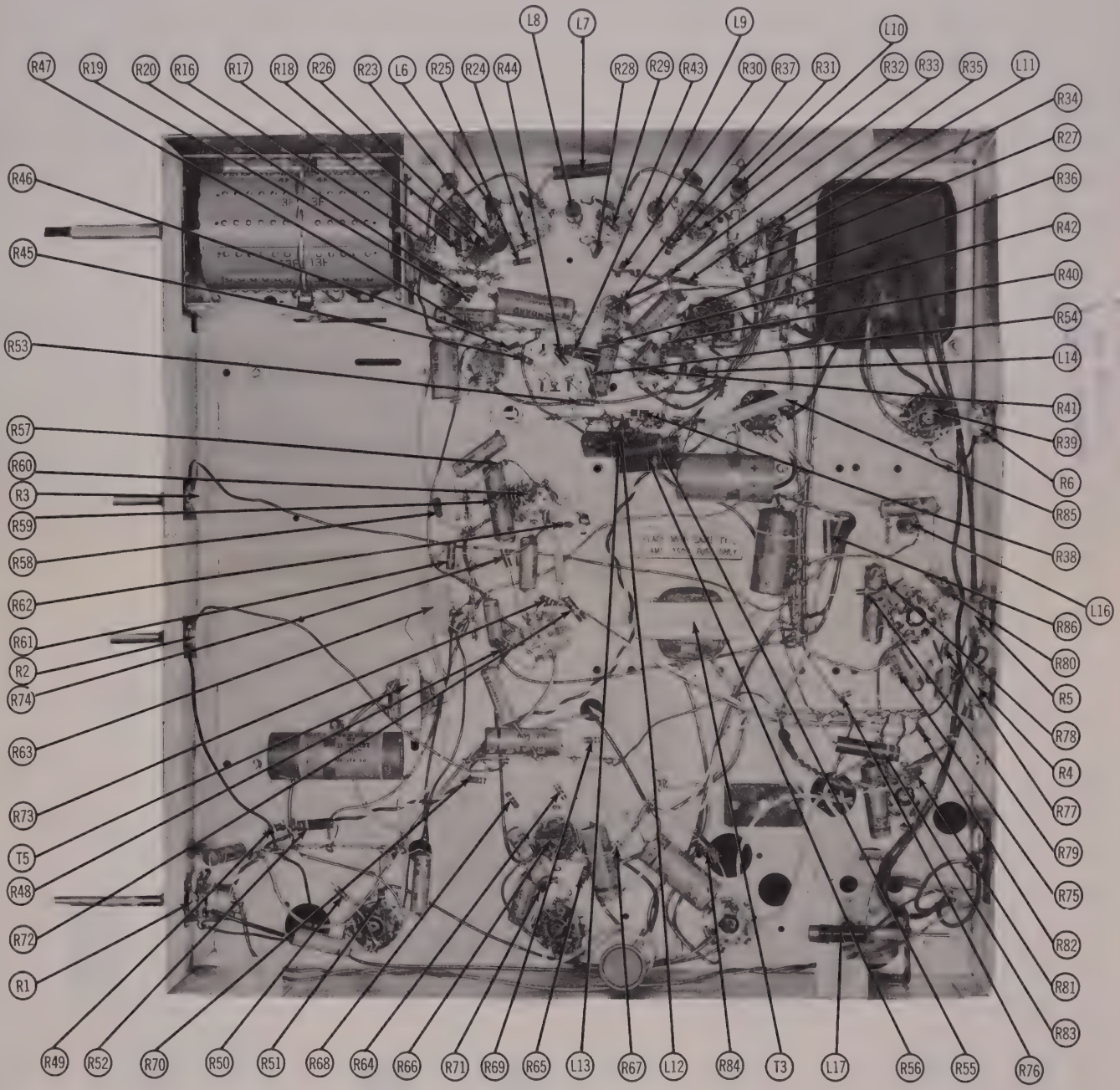
* Not used in all models.

MECK MODELS JM-717C, T, JM-720C, T, JM-721C, CD, MM-617C, T, MM-620C, T (Ch. 9032)

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	MECK PART No.	NOTES
M3A	RF Tuner	TT-10012	Standard Coil
B	RF Tuner	TT-10011	Standard Coil Cascode Type (Alternate)
C	RF Tuner	TT-10007C	Sarkes Tarzian, Switch Type (Alternate)
D	RF Tuner	TTC-10004B	RC Tuner (Continuous type) (Alternate)
E	RF Tuner	TTC-10009A	RC Tuner (Switch type) (Alternate)
F	RF Tuner	TTC-10008	Franklin Tuner (Alternate)
M4A	Crystal		1N60 (Det.)
B	Crystal	GD-10000	1N64 (Det.) Alternate
M5	Centering Magnet		
M6A	Ion Trap	ITA-10003	
B	Ion Trap	IRA-10002 A	
B2	Trimmer	CTA-10005	Horiz. Drive (25.280MMF)
	Knob	KB-10107A	Contrast
	Knob	KB-10108	Fine Tuning
	Knob	KB-10129	Channel Selector
	Knob	KB-10110	OFF/ON Volume
	Mask	MRD-10089C	20" Tube (Model JM-720T)
	Mask	MRD-10092B	17" Tube (Model JM-717C)
	Mask	MRD-10111D	20" Tube (Model MM-620T)
	Mask	MRD-10112D	17" Tube (Models MM-617T, MM-617C
	Escutcheon	NB-10027A	Control Cover
	Safety Glass	DWC-10035A	Grade "A" (Models MM-617T, JM-720T, MM-620T, MM-617C JM-720C
	Back Cover	XCD-10063A	Models MM-617T, JM-720T, MM-620T, JM-717C, JM-720C, MM-617C & MM-720C
	Cabinet	ZWA-10146	Mahogany (Models MM-617T, JM-720T, MM-620T
	Cabinet	ZWE-10140	Mahogany (Models JM-717C, MJM-720C, MM-617C)



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

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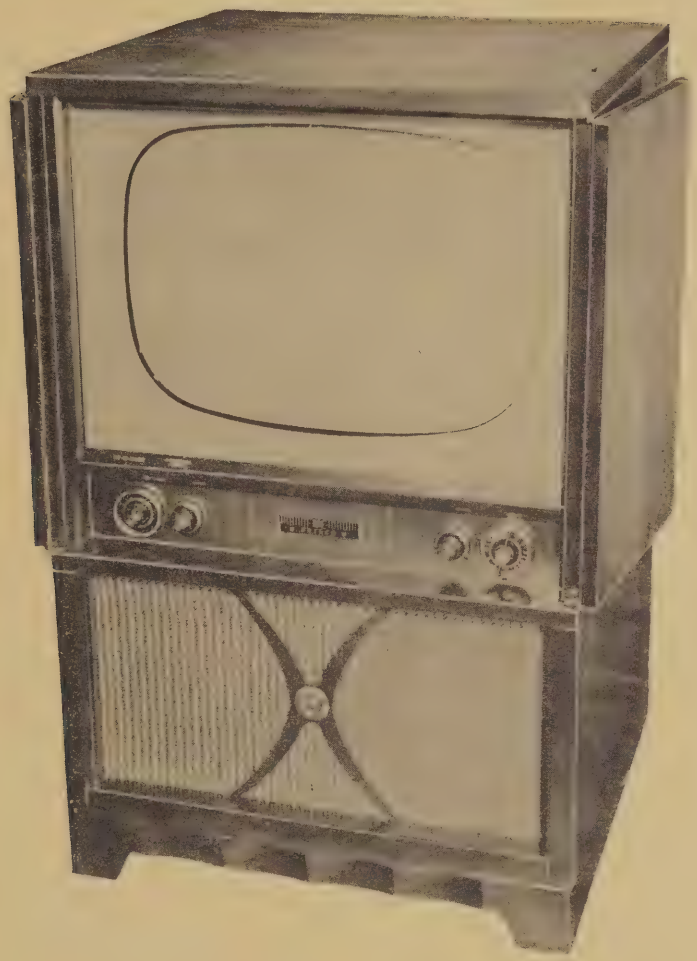

MODEL 52-T2264

PHILCO MODELS 52-T2157, 53-T2126, 53-T2260, 53-T2262, 53-T2264 (Ch. 42 & G2)

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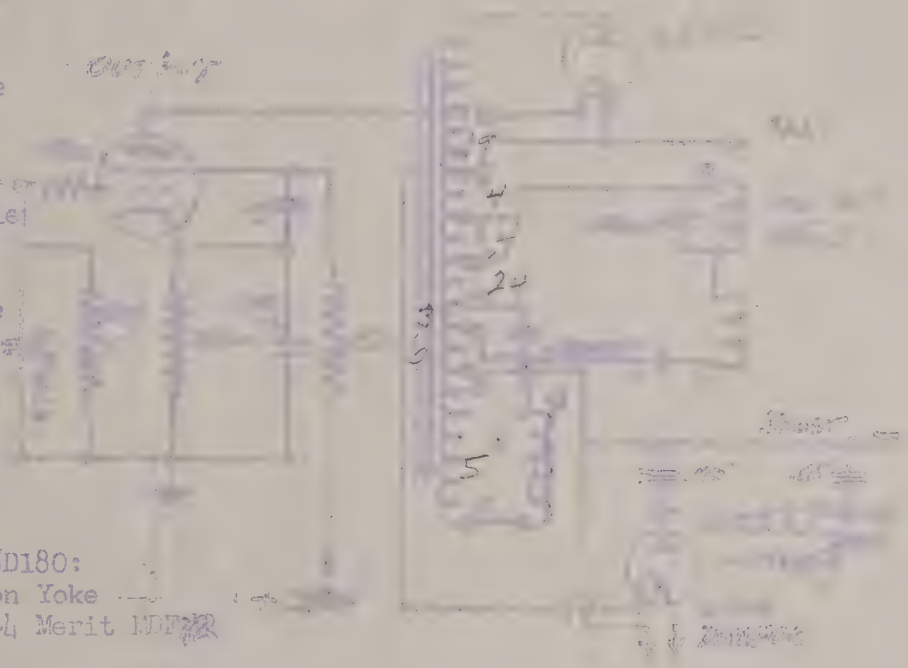
DATE 11-52 SET 186 FOLDER 10

WIRING DIAGRAM

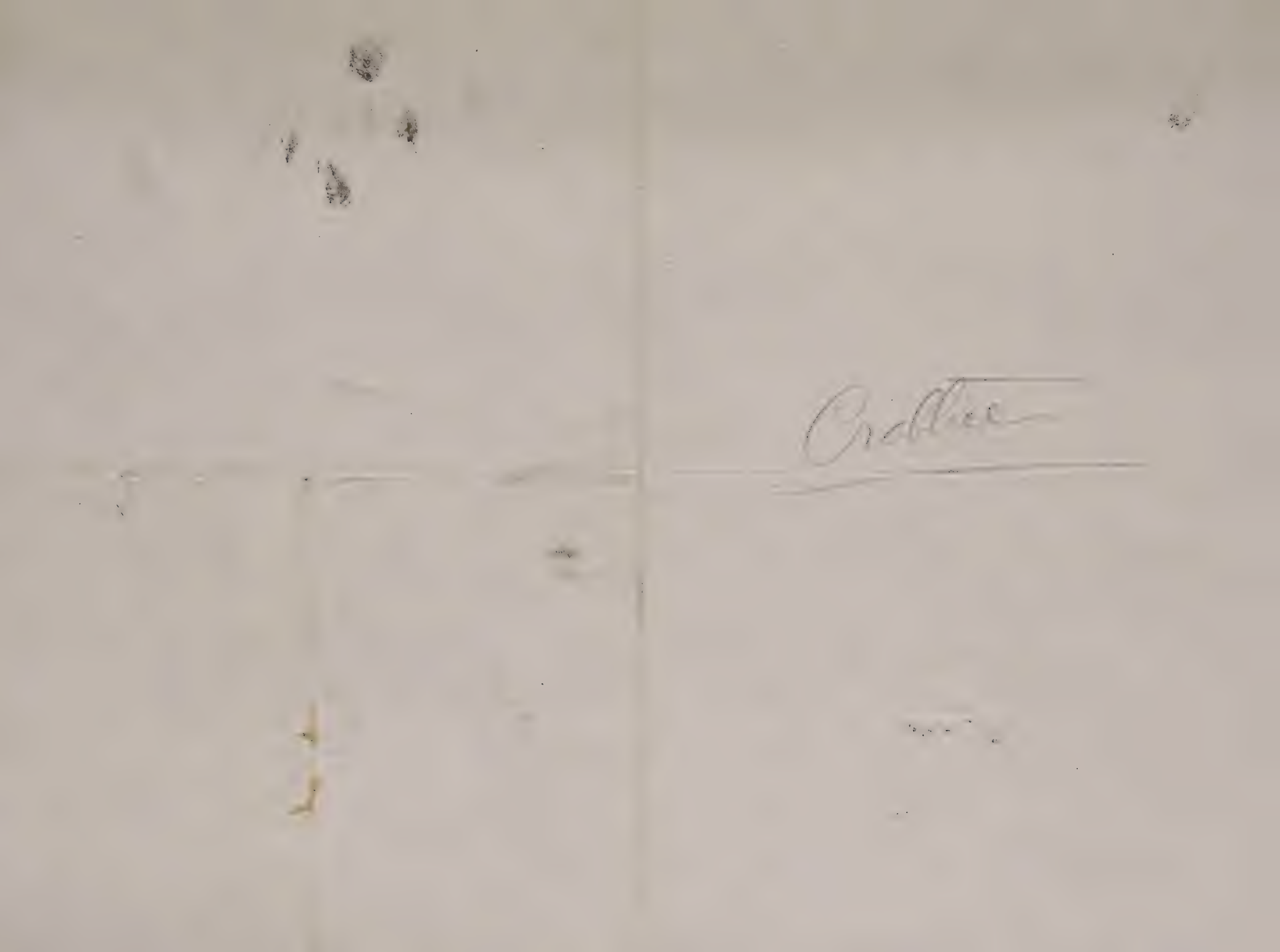
HORIZONTAL DEFLECTION OUTPUT & HIGH VOLTAGE TRANSFORMER NO. 55D180
EXACT REPLACEMENT FOR HALLICRAFTER - 1000 SERIES

TYPICAL CIRCUIT USING 55 D180



The No. 55D180 is a horizontal deflection output and high voltage transformer for use with picture tubes sizes from 17" to 21". It will accommodate picture tubes having a deflection angle of 66 to 70 degrees. Ample deflection is available for a single driver tube and requires a single rectifier tube. The 55D180 supplies 18KV at no load with good regulation and linearity. May be used with the following driver tubes - 6BQ6, 6AU5, 6AV5, 6BG6, 6CD6.

Horizontal Output Transformer #55D180:
2000 Volts, 200 M Test. Deflection Yoke ---
Chicago No. TY36 Chicago No. TY-4 Merit MDF32
.2 to 1.5 MH Linearity Control
Chicago No. TL-2 Merit MWC4
1 to 10 MH Width Control
Chicago No. TW7 Merit MWC6



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*TRADE MARK

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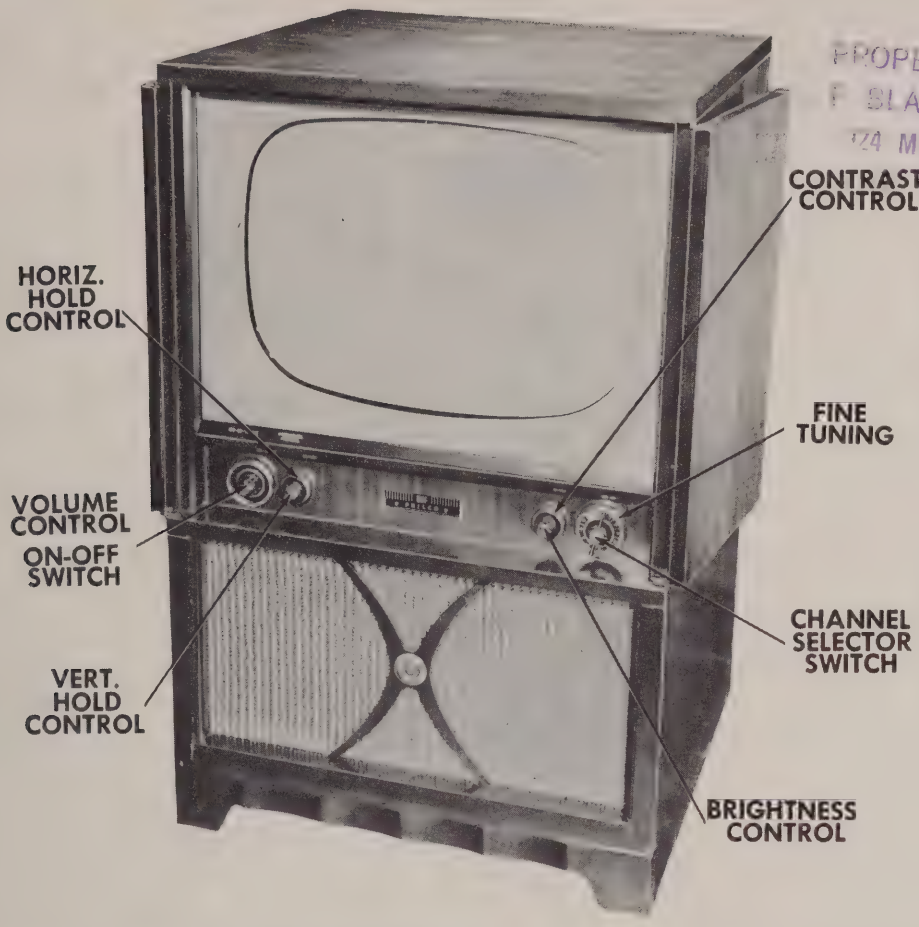

PHILCO 53-T2264

TRADE NAME	Philco Models 52-T2157, 53-T2126, T2260, T2262, T2264 (RF Ch. 42, Run 1, Def. Ch. G2, Runs 1 & 2)Code 125
MANUFACTURER	Philco Corp., Tioga and "C" Sts., Philadelphia, Pa.
TYPE SET	Television Receiver
TUBES	Twenty
POWER SUPPLY	110-120 Volts AC-60 Cycle — RATING 1.64 Amp @ 117 Volts AC
TUNING RANGE—	CHANNELS 2 thru 13

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PHILCO MODELS 52-T2157, 53-T2126, 53-T2260, 53-T2262, 53-T2264 (Ch. 42 & G2)

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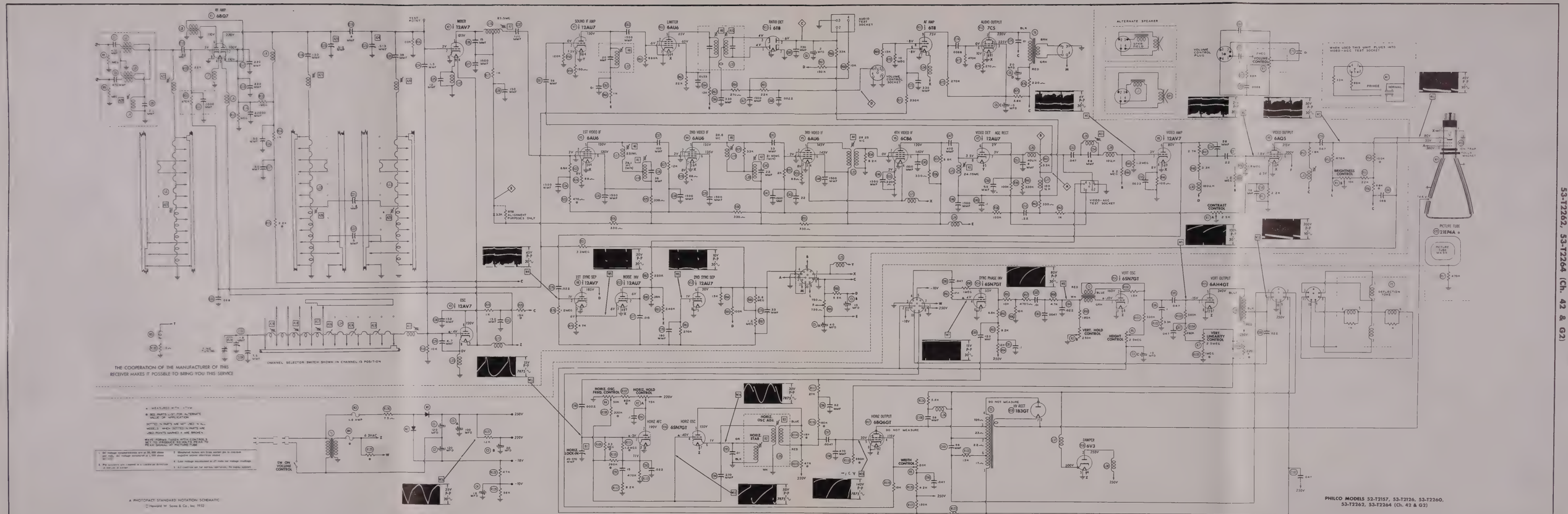
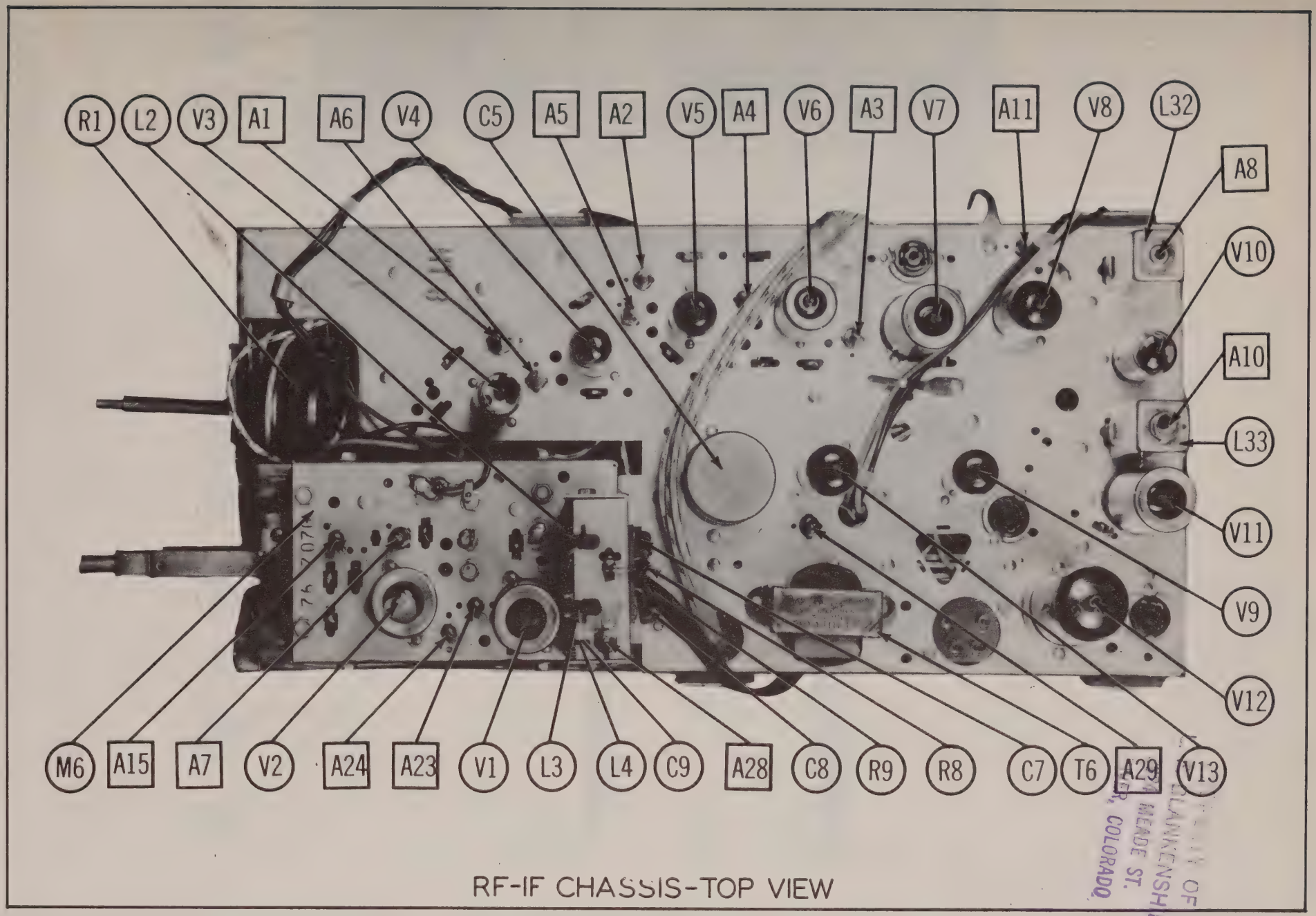

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1952
PHILCO MODELS 52-T2157, 53-T2126, 53-T2260, 53-T2262, 53-T2264 (Ch. 42 & G2)

PHILCO MODELS 52-T2157, 53-T2126, 53-T2260, 53-T2262, 53-T2264 (Ch. 42 & G2)



RF-IF CHASSIS-TOP VIEW

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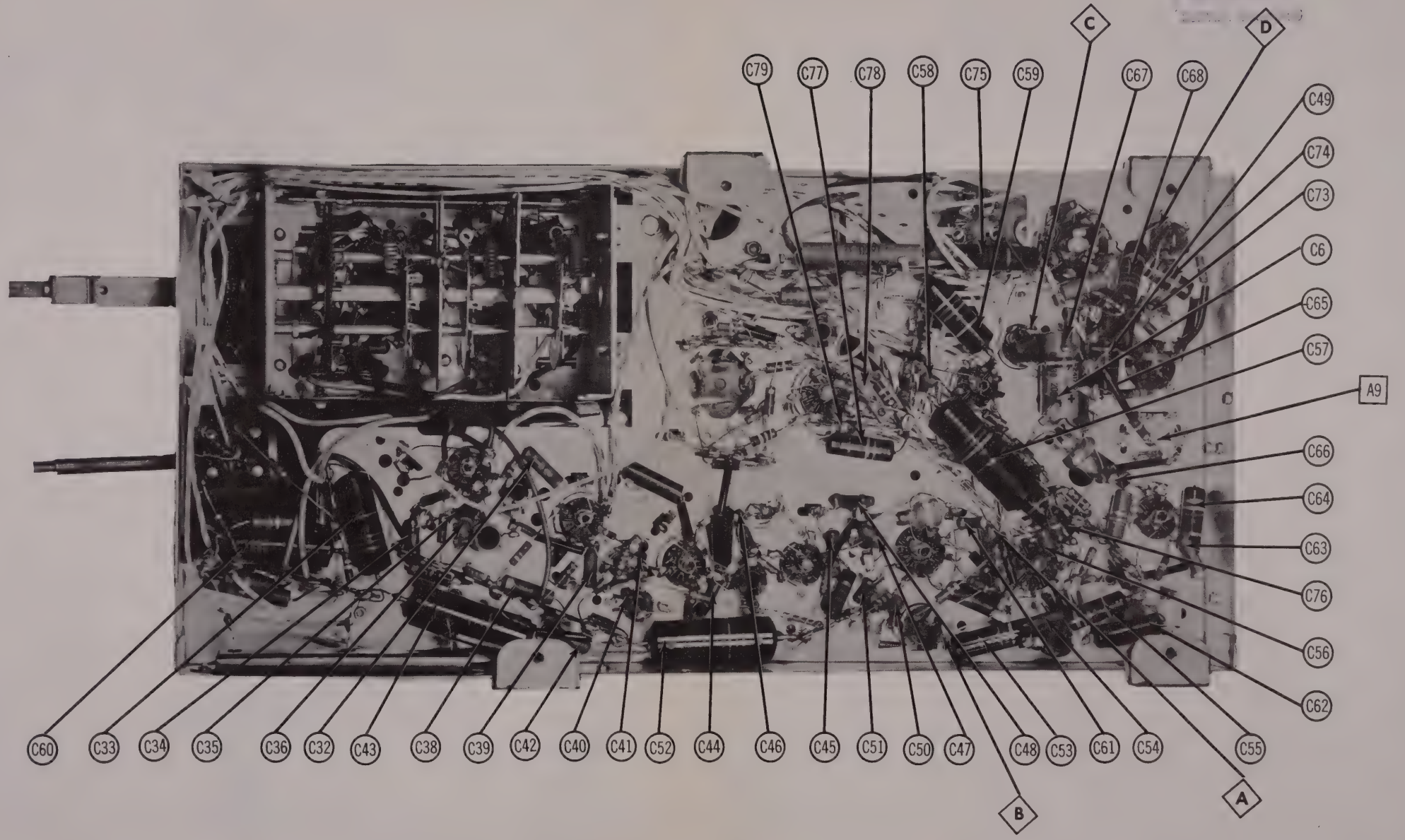
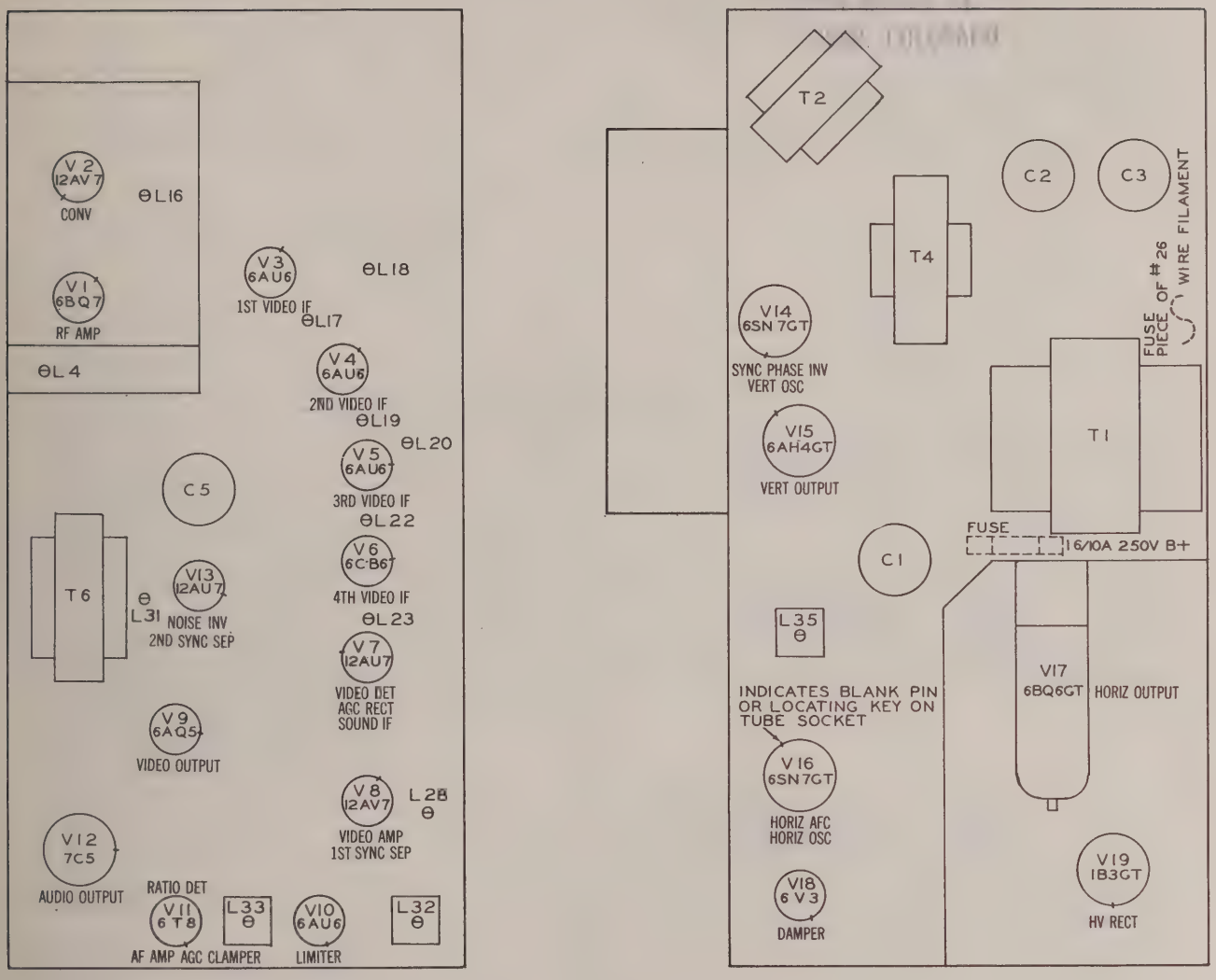


RF-IF CHASSIS-BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TOP VIEWS

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placements chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound-Selenimum Rectifiers (M1, M2), Fuse (M3)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster-V2, V3, V4, V5, V6, V7
No pic, no sound, has snow-V1, V2, V3
No pic, has sound, has raster,-V8, V9, V20
Has pic, no sound-V7, V10, V11, V12
Overloaded picture-V7, V11

SYNC FAILURE
No vert. Sync. -V14
No horiz. sync.- V14, V16
No vert. or horiz. sync. -V13, V14

SWEEP FAILURE
No raster, has sound-V16, V17, V18, V19, V20
No vertical deflection-V15
Poor vert. linearity or foldover-V14, V15
Poor horiz. linearity or foldover-V16, V17, V18
Narrow picture-V16, V17, V18, V19, VM1, VM2
Vert. off freq. -V14
Horiz. off freq. -V14, V16

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage. Use an isolation transformer to protect the test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt battery to the junction of R38 and R39. Connect the positive lead to chassis. Preset A1 and A2 fully counter clockwise. Preset A5 and A6 to the center of their range.
Set the contrast control fully counter clockwise.
Set the brightness control to give a dim raster.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	.001MFD	High side to pin 2 (grid) of 12AV7 (V2). Low side to chassis.	28.1MC (Unmod)	Any not used locally	DC probe to point (A) Common to point (B)	A1	Adjust for MINIMUM deflection. Use zero bias.
2.	"	"	21.85MC	"	"	A2	"
3.	"	"	24.75MC	"	"	A3	Adjust for maximum deflection. Attenuate generator to maintain 2 volt reading at VTVM.
4.	"	"	26.25MC	"	"	A4	"
5.	"	"	26.6MC	"	"	A5	"
6.	"	"	23.1MC	"	"	A6	"
7.	"	"	23.5MC	"	"	A7	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.001MFD	High side to pin 2 (grid) of 12AV7 (V2). Low side to chassis.	24MC (10MC Swp)	22.5MC 26.6MC	Any not used locally	Vert. amp to point (A). Low side to chassis.		Check for response curve similar to fig. 1 If necessary make minor adjustments of A3 thru A7 for proper response.

SOUND IF ALIGNMENT

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	2200Ω Carbon Resistor	High side thru 2200Ω to point (A). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any not used locally.	Vert. amp to point (C). Low side to chassis.	A8, A9	Disconnect stabilizer capacitor C6. Adjust for curve of maximum amplitude and symmetry as in fig. 2.
10.	"	"	"	"	"	Vert. amp to point (D). Low side to chassis.	A10	Reconnect capacitor C6. Adjust so that 4.5MC occurs at center of crossover lines as in fig. 3 SLIGHTLY retouch A9 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	2200Ω Carbon Resistor	High side thru 2200Ω to point A. Low side to chassis.	Not used.	4.5MC (400∿Mod)	Any not used locally.	Vert. amp to pin 2 (grid) of picture tube.	A11	Adjust for minimum 400∿ indication on scope.

OSCILLATOR ALIGNMENT

Reduce the bias used during Video IF Alignment to 1.5 volts.
Preset the fine tuning control to the mid-position of its range (the stop on the cam centered on channel 6 adjustment screw).
Starting with Channel 13 every other coil is tunable, therefore, it is possible to set either of two adjacent channels on exact frequency, i.e., 13 or 12, 11 or 10, etc.
Connect a 3300Ω resistor in series with the red lead from the tuner. The junction of the resistor and the red lead is alignment point E.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Direct	Across antenna terminals	Not used.	237.85MC (Unmod.) 225.85MC 213.85MC	13 11 9	Vert. amp. to point (E). Low side to chassis.	A12 A13 A14	Adjust for zero beat indication on scope.
13.	"	"	"	207.85MC	8	"	A15	Check channel 8 oscillator frequency. If too high, adjust A15 clockwise, if too low adjust counter clockwise. Repeat steps 12 and 13 until oscillator frequencies are correct on Channels 13, 11, 9 and 8.
14.	"	"	"	201.85MC 109.85 MC 93.85MC 81.85MC	7 + 6 - 4 2	"	A16 A17 A18 A19	Adjust for zero beat indication on scope.

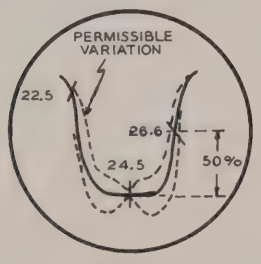


FIG. 1

FIG. 2

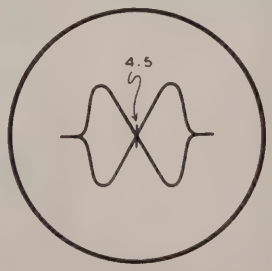


FIG. 3

ALIGNMENT INSTRUCTIONS (CONT.)

RF ALIGNMENT

Disconnect the white lead from tuner and connect to the negative lead of a 1.5 volt battery. Connect the positive lead to chassis.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

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	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
15.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	213MC	13	Vert. amp. to point (E). Low side to chassis.	A20, A21, A22	Detune A20 until a single peak appears. Adjust A21 to place marker at center of peak. Adjust A22 for maximum height and symmetry of peak.
16.	"	"	"	211.25MC 213.MC 215.75MC	"	"	A20, A21	Readjust for response curve similar to fig. 4.
17.	"	"	177MC (10MC Swp)	177MC	7	"	A23, A24	Examine response curve for center frequency and tilt. If the response is tilted adjust A23 and A24 until response is a mirror image of the original. This over-compensation is necessary to follow for effect of channel 13 adjustments on Channel 7. Repeat steps 16 and 17 until the most symmetrical and centered response curves are obtained for Channels 13 and 7. See figures 5A and 5B for example of compensated response curve.
18.	"	"	85MC (10MC Swp)	85MC	6	"	A25, A26 A27	Detune A25 until a single peak appears. CAUTION: Do not turn A25 excessively or it will fall out of the coil. Adjust A26 so 85MC falls at center of single peak. Adjust A27 for maximum amplitude and symmetry of peak.
19.	"	"	"	83.25MC 85.MC 87.75MC	"	"	A25, A26	Readust A25 and A26 for response similar to fig. 4.

FM TRAP ADJUSTMENT

The FM trap, A28, is factory adjusted to eliminate interference at 100MC. If interference is experienced from an FM station at some other frequency it can be reduced by tuning in the TV station affected and adjusting A28 for minimum interference.

VIDEO OUTPUT PEAKING COIL ADJUSTMENT

The Video Output Peaking Coil is adjusted at the factory for proper transient response of the video amplifiers. If this coil is replaced in servicing, adjustment will be necessary. Also, on some stations where excessive smear is present adjustment may improve the picture quality on that station at the possible sacrifice of quality on others. Before adjusting, make certain that tuner and IF Alignments are correct, then tune in the station and adjust A29 so there are no trailing whites or smear in the picture.
Check other stations to see that quality has not been impaired.

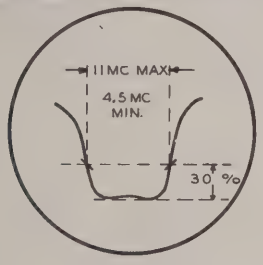


FIG.4

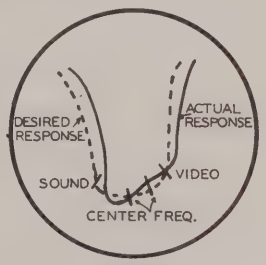


FIG.5A
ORIGINAL

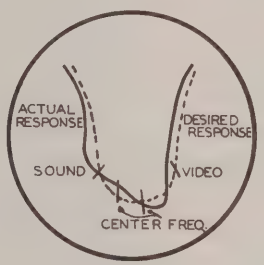


FIG.5B
COMPENSATED

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

If normal adjustment of the horizontal hold control fails to maintain horizontal sync adjust as follows:

Turn the horizontal hold control fully clockwise.
Adjust the horizontal frequency control until 4 diagonal black bars appear, sloping to the right.
Turn the horizontal hold control counter clockwise until the picture comes in, then out, of sync. If necessary momentarily turn to another channel to throw picture out of sync.
Then turn the horizontal hold control slowly clockwise and note the least number of black bars appearing just before the picture falls into sync.
Adjust the horizontal lock-in trimmer, (B1), for 2 to 2½ bars just before synchronization.

If above adjustments do not give satisfactory synchronization it may be necessary to adjust the horizontal stabilizing slug (B2).
Connect an oscilloscope through a 15MMF capacitor to pin 6 (cathode) of 6SN7 (V16).
Adjust B2 for a curve similar to fig. 6.
The average line of the scope is established by shorting the input leads of the scope.
Points "A" should coincide with the average line of the scope.
Turn the horizontal hold control fully clockwise.
Adjust the horizontal frequency control until 4 diagonal black bars appear, sloping to the right.
If 4 diagonal black bars cannot be obtained by adjusting the horizontal control as above, adjust the horizontal oscillator slug (B3) for the desired result.

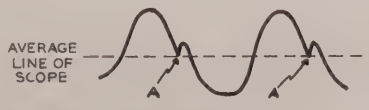
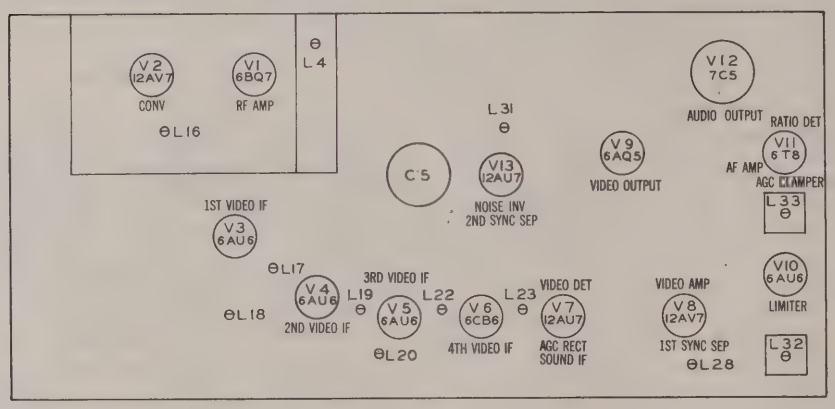


FIG.6

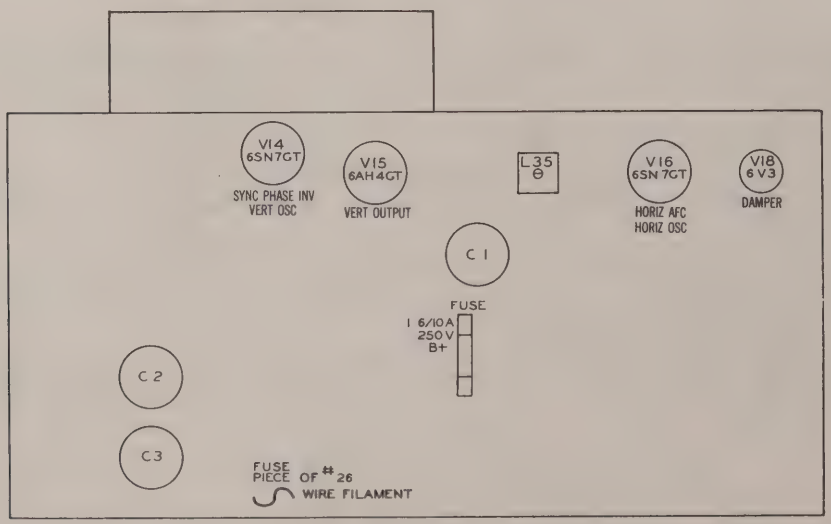
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7	†3.2KΩ	500KΩ	INF	.1Ω	.2Ω	INF	9.4Meg	0Ω	0Ω
V 2	12AV7	†3.1KΩ	100KΩ	0Ω	.2Ω	.2Ω	†16KΩ	10KΩ	.3Ω	.1
V 3	6AU6	535KΩ	0Ω	0Ω	.1Ω	†2.1KΩ	†2.1KΩ	68Ω		
V 4	6AU6	540KΩ	0Ω	0Ω	.1Ω	†1.8KΩ	†1.8KΩ	68Ω		
V 5	6AU6	540KΩ	0Ω	0Ω	.1Ω	†1.5KΩ	†1.5KΩ	68Ω		
V 6	6CB6	.2Ω	220Ω	0Ω	.1Ω	†7.1KΩ	†1.8KΩ	0Ω		
V 7	12AU7	†2.5KΩ	120KΩ	150Ω	.1Ω	.1Ω	330KΩ	6KΩ	2.7KΩ	0Ω
V 8	12AV7	†5.6KΩ	8 Meg	4.7KΩ	0Ω	0Ω	†11KΩ	1 Meg	100Ω	.1Ω
V 9	6AQ5	720KΩ	735Ω	0Ω	.1Ω	†1.8KΩ	†750Ω	720KΩ		
V 10	6AU6	680KΩ	0Ω	0Ω	.1Ω	†6.5KΩ	†6.5KΩ	0Ω		
V 11	6T8	INF	34KΩ	INF	0Ω	.1Ω	9.2Meg	0Ω	10Meg	†275KΩ
V 12	7C5	.1Ω	†784Ω	†5.6KΩ	INF	†0Ω	470KΩ	270Ω	0Ω	
V 13	12AU7	32KΩ	32KΩ	4.7KΩ	0Ω	0Ω	15KΩ	7.1Meg	0Ω	.1Ω
V 14	6SN7GT	260KΩ	#800KΩ	0Ω	1 Meg	†11KΩ	0Ω	0Ω	.1Ω	
V 15	6AH4GT	2.4Meg	0Ω	1.8Meg	INF	†307Ω	INF	.1Ω	0Ω	
V 16	6SN7GT	1.1Meg	†29KΩ	300KΩ	250KΩ	†59KΩ	60Ω	.1Ω	0Ω	
V 17	6BQ6GT	INF	.1Ω	INF	†7.5KΩ	600KΩ	INF	0Ω	0Ω	Top Cap #25Ω
V 18	6V3	INF	†2Ω	INF	.1Ω	0Ω	INF	†2Ω	Pin 8 INF	Pin 9 †2Ω / Top Cap 270KΩ
V 19	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								Top Cap #745Ω
V 20	21EP4A	0Ω	470KΩ	Pin 10 #120KΩ	Pin 11 120KΩ	Pin 12 .1Ω				

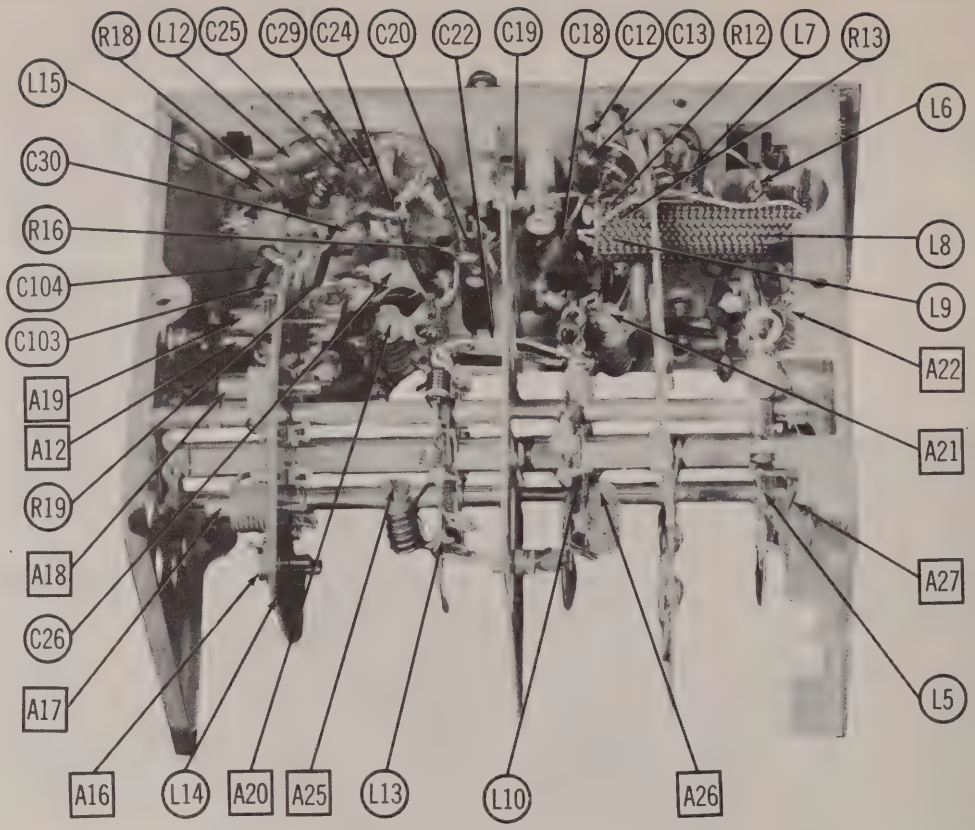
ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED.
NORMAL & FRINGE SWITCH IN "NORMAL" POSITION
† MEASURED FROM OUTPUT OF MI
# MEASURED FROM TOP CAP OF V18



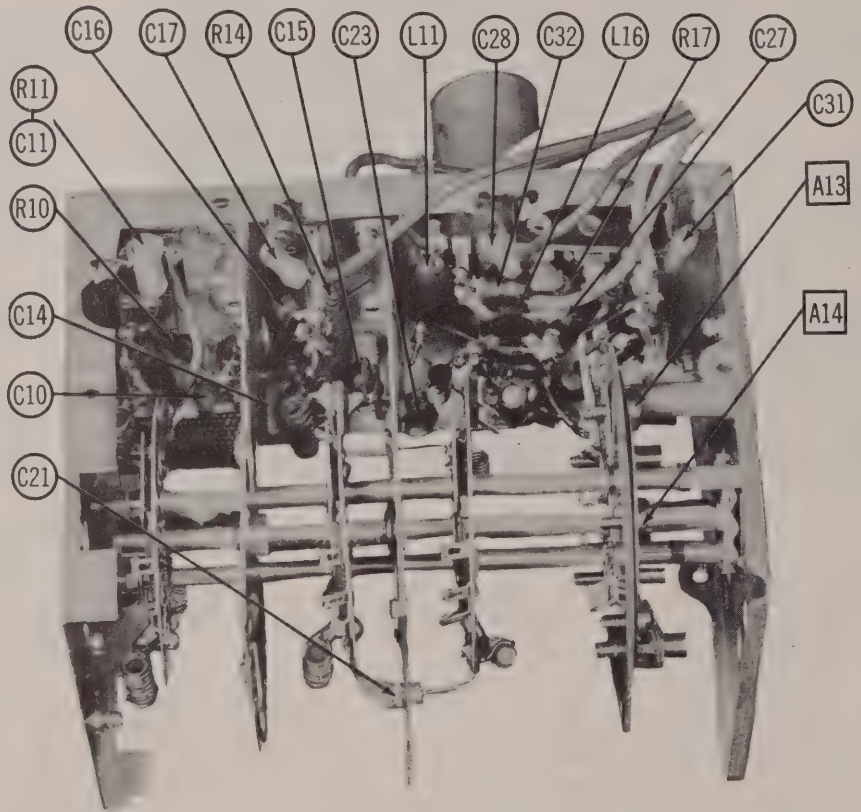
BOTTOM VIEWS



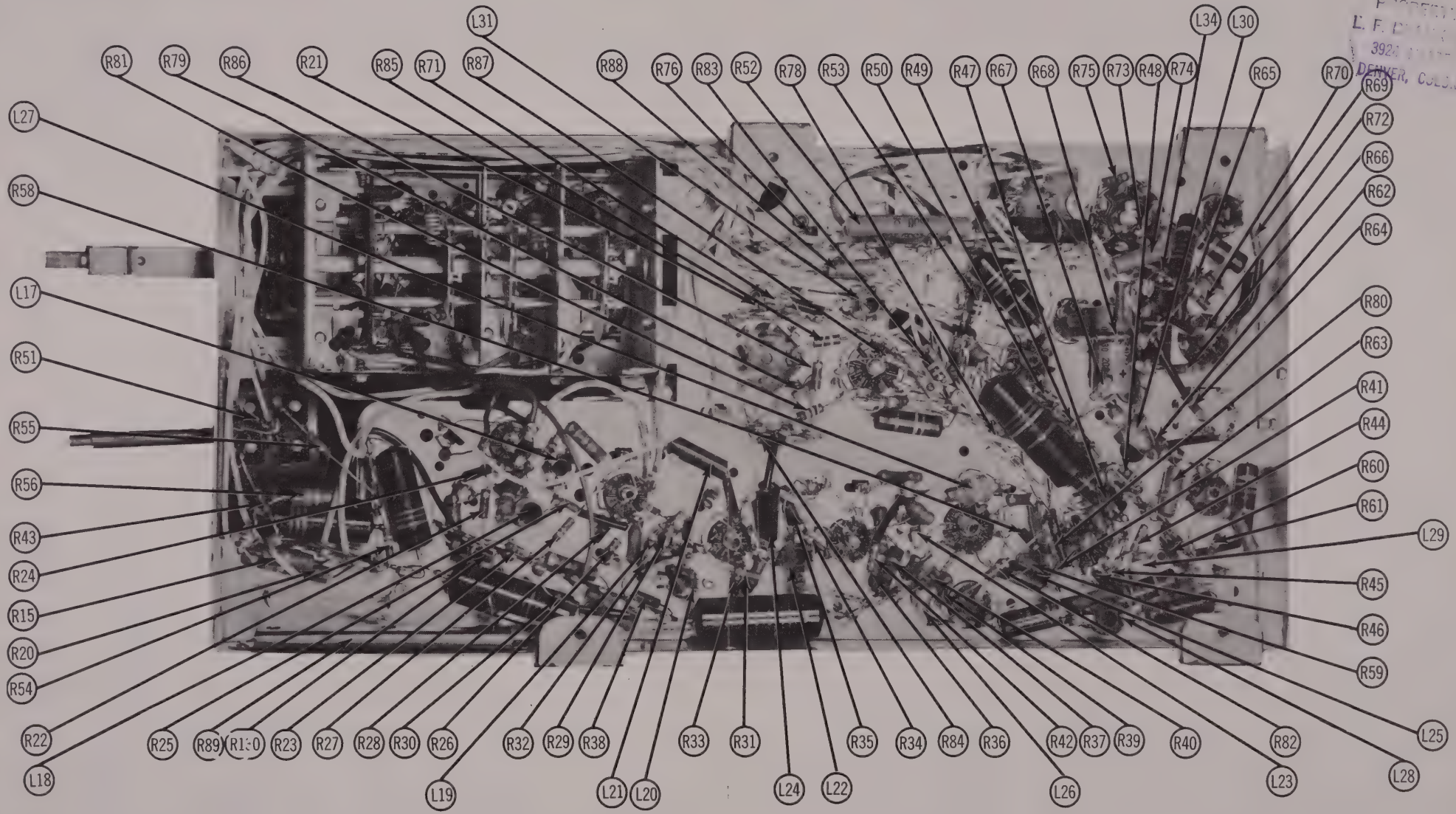
TUBE PLACEMENT CHART



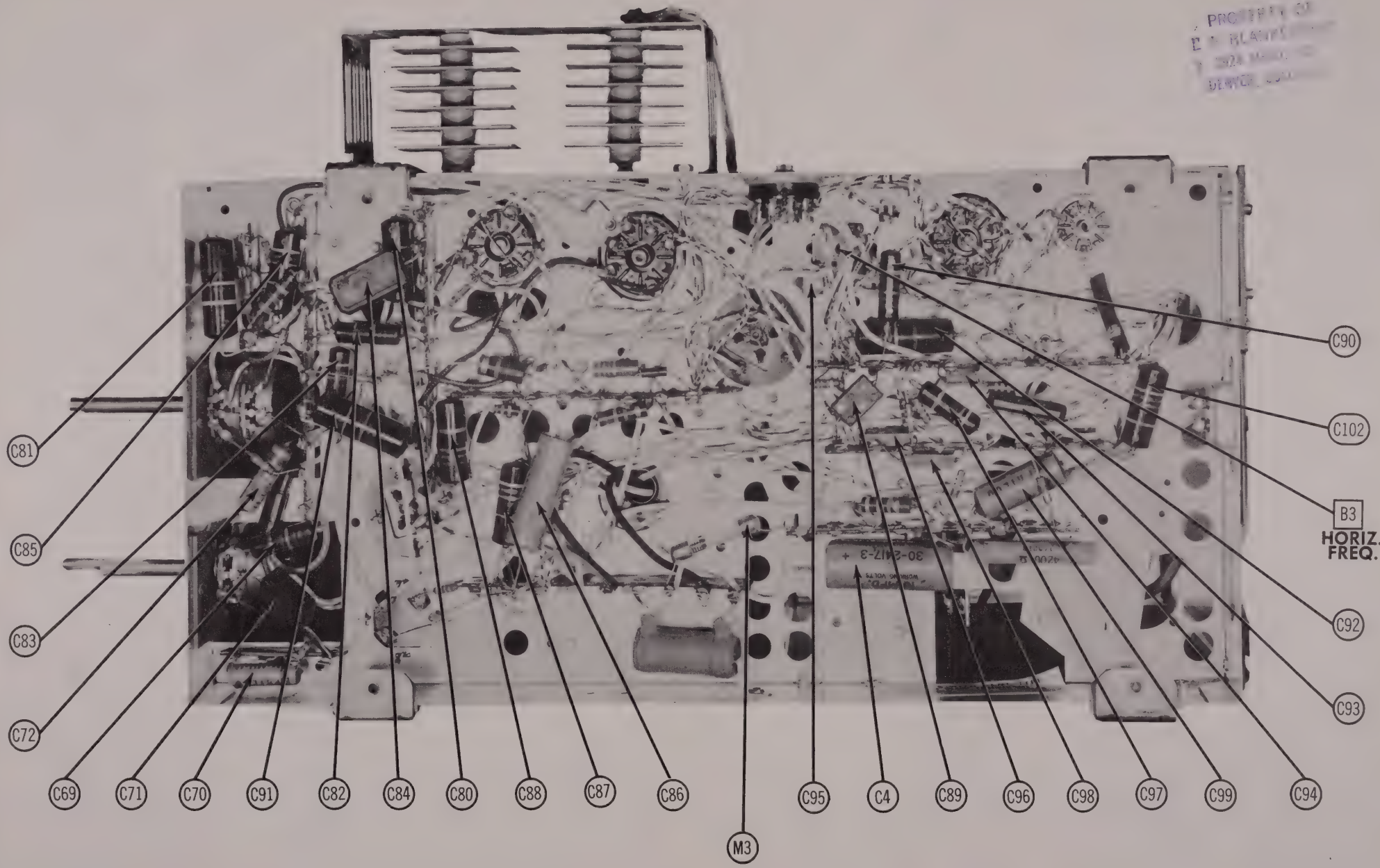
RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



RF-IF CHASSIS-BOTTOM VIEW-RESISTOR AND INDUCTOR AND ALIGNMENT IDENTIFICATION



SWEEP CHASSIS-BOTTOM VIEW- CAPACITOR AND ALIGNMENT IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6BQ7	6BQ7	9AJ	
V2	Converter	12AV7	12AV7	9A	
V3	1st. Video IF Amp.	6AU6	6AU6	7BK	
V4	2nd. Video IF Amp.	6AU6	6AU6	7BK	
V5	3rd. Video IF Amp.	6AU6	6AU6	7BK	
V6	4th. Video IF Amp.	6CB6	6CB6	7CM	
V7	Video Detector-AGC Rectifier-Sound IF Amp.	12AU7	12AU7	9A	
V8	Video Amplifier-1st. Sync Separator	12AV7	12AV7	9A	
V9	Video Output	6AQ5	6AQ5	7BZ	
V10	Limiter	6AU6	6AU6	7BK	
V11	Ratio Detector-AGC Clamper-AF Amplifier	6T8	6T8	9E	
V12	Audio Output	7C5	7C5	6AA	
V13	Noise Inverter-2nd. Sync Separator	12AU7	12AU7	9A	
V14	Sync Phase Inv.-Vert. Oscillator	6SN7GT	6SN7GT	8BD	
V15	Vert. Output	6AH4GT	6AH4GT	8EL	
V16	Horiz. AFC-Horiz. Oscillator	6SN7GT	6SN7GT	8BD	
V17	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V18	Damper	6V3	6V3	9BD	
V19	HV Rectifier	1B3GT	1B3GT	3C	

PROPERTY OF
E. BLANKENSHIP
[illegible] MEADE ST.
[illegible], COLORADO

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: SYLVANIA PART No.		RTMA BASE TYPE	NOTES
V20A	21EP4A	21EP4A		12D	① Circuit changes necessary
		21EP4 ①		12D	② 3/8" shorter
		21FP4 ①		12C	
		21FP4A ①		12C	
B	17JP4 ①	17JP4		12D	
C	20DP4A ①	20DP4A		12D	
		20DP4 ①		12D	
		20CP4 ① ②		12D	
		20CP4A ②		12D	
D	20EP4A			12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1	120	150	30-2570-66	E3A162		UPE15020		FP140	TVL-1428	
C2	120	150	30-2570-66	E3A162		UPE15020		FP140	TVL-1428	
C3A	■100	300	30-2584-15	AFH4-110		UPT435		FP255	TVL-4704	
B	▲20	300						TC72		
C	▲10	450								
C4	10	50	30-2417-3	PRS250/12		BR105		TC32	TVA-1304	
C5A	▲40	300	30-2570-57	AFH4-18		UPT421145		FP476	TVL-4840	
B	▲10	300								
C	10	300								
D	■20	300								
C6	2	50	30-2417-7	E26E6		BBR-2-50T		TC302	TVA-1301	
C7	470		62-147001001	SI470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C8	470		62-147001001	SI470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C9	20		62-020309011	SI20N750	TCN-20		N750K-200		5TCU-Q2	
C10	150		62-115001011	SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C11	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	Note 1
C12	220		30-1225-11	SI220	D6-221		GP2K-221	UC-5322	5GA-T22	
C13	220		30-1225-11	SI220	D6-221		GP2K-221	UC-5322	5GA-T22	
C14	20000		30-1238-5						5HK-S2	
C15	.5-3				829-3			CT565A		
C16	150		62-115001011	SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C17	150			SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C18	150		62-115001011	SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C19	.6									
C20	39		62-039409011	SI39	D6-390		GP1K-390	UC-5439	5GA-Q39	
C21	1.2		30-1221-7				NP0K-1R2			
C22	5		30-1221-13	SI5	TCZ-4.7		GP1K-050	ZT-555	5GA-V5	
C23	.5-3		31-6520-3		829-3			CT565A		
C24	1.5		30-1224-54	SI1.5NP0	TCZ-1.5		NP0K-1R5	ZT-5515	5TCCB-V1.5	
C25	12						N150K-120			
C26	15		62-015409011	SI15	D6-150		GP1K-150	UC-5415	5GA-Q15	
C27	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C28	150		62-115001001	SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C29	4.7		30-1224-85	SI5NP0	TCZ-4.7		NP0K-4R7	ZT-555	5TCC-Q47	
C30	150		62-115001011	SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C31	150		62-115001011	SI150	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C32	100		62-1100001001	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C33	.068	400		P488-068		PTE4S68			4TM-S68	
C34	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C35	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C36	39		30-1224-63				N220K-390			
C37	100		62-110009001	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C38	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C39	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C40	22		62-022009001	SI22	D6-220	5W5Q25	GP1K-220	UC-5422	5GA-Q22	
C41	33		62-033009001	SI33	D6-330		GP1K-330	UC-5433	5GA-Q33	
C42	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C43	.22	200		P488-22		PTE4P22		PT4025	2TM-P22	
C44	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C45	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C46	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C47	470		62-147001021	SI470	D6-471	5R5T5	GP2K-471	UC-5347	5GA-T47	
C48	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C49	.1	200		P288-1	DF-104	PTE4P1		PT401	4TM-P1	
C50	56		62-056409011	SI56	D6-560		GP1K-560	UC-5456	5GA-Q56	
C51	8		30-1224-13							
C52	.22	200		P488-22		PTE4P22		PT4025	2TM-P22	
C53	.047	200		P288-047		PTE4S47		PT4147	2TM-S47	
C54	68		62-068409011	SI68	D6-680	5R5Q7	GP1K-680	UC-5468	5GA-Q68	
C55	.0033	400		P688-0033	D6-332	PTE6D33	GP3-333-332	PT6233	6TM-D33	
C56	56		62-056409011	SI56	D6-560		GP1K-560	UC-5456	5GA-Q56	
C57	.22	400		P488-22		PTE4P22		PT4025	4TM-P22	
C58	56			SI56	D6-560		GP1K-560	UC-5456	5GA-Q56	
C59	.047	400		P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C60	.068	400		P488-068		PTE4S68			4TM-S68	
C61	56		62-056409011	SI56	D6-560		GP1K-560	UC-5456	5GA-Q56	
C62	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	PT4ll	4TM-S1	
C63	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C64	.0033	400		P688-0033	D6-332	PTE6D33	GP3-333-332	PT6233	6TM-D33	
C65	330		60-133001001	SI330	D6-331		GP2K-331	UC-5333	5GA-T33	
C66	330		60-10335417	SI330	D6-331		GP2K-331	UC-5333	5GA-T33	
C67	1500			SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C68	.0022	400		P688-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C69	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	PT4ll	4TM-S1	
C70	.0068	400		P688-0068	D6-682	PTE6D68	GP2-333-682	PT6268	6TM-D68	
C71	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	PT4ll	4TM-S1	
C72	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	PT4ll	4TM-S1	
C73	330			SI330	D6-331		GP2K-331	UC-5333	5GA-T33	
C74	.0068	400		P688-0068	D6-682	PTE6D68	GP2-333-682	PT6268	6TM-D68	
C75	.01	1000		P1088-01		PTE16S1		PT16ll	MB-S1	
C76	.022	400		P488-022	DF-203	PTE4S22		PT4122	4TM-S22	
C77	.015	200		P288-015		PTE6S15		TP400	6TM-S15	
C78	180	500	60-10185417	1469-0002		5R5T2		MCB237	MS-32	
C79	33		62-033009001	SI33	D6-330		GP1K-330	UC-5433	5GA-Q33	
C80	.047	400		P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C81	.1	400		P488-1	DF-104	PTE4P1		PT4P1	4TM-P1	
C82	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	PT4ll	4TM-S1	
C83	.0047	600		P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C84	.022	200		P488-022	DF-203	PTE4S22		PT4122	4TM-S22	
C85	.047	400		P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C86	.1	400		P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C87	.047	400		P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C88	.022	600		P688-022	DF-203	PTE6S22		PT6122	6TM-S22	
C89	120	500	60-10125237	1469-00015		5R5T15		MCB236		
C90	.0022	400		P688-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C91	.1	400		P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C92	.15	200		P288-15		PTE4P15		TP417	2TM-P15	
C93	.022	200		P488-022		PTE4S22		PT4122	4TM-S22	
C94	270	500	60-10275337	1469-0003		5R5T3		MCB241	MS-33	
C95	.01	200		P488-01	D6-103	PTE4S1	GP2-333-103	PT4ll	4TM-S1	
C96	82	500	60-00825337							
C97	.0047	600		P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C98	470	500	60-30475411	1469-0005		5R5T3		MCB245	MS-35	
C99	.047	400		P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C100	56	2000	30-1243-5							
C101	68	4000								
C102	.047	400		P488-047		PTE4S47		PT4147	4TM-S47	
C103	1-6		30-6520-2		829-6					
C104	7.5		30-1224-84				N750K-7.5			

Note 1. Mfgrs. part no. includes R11.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2500Ω	2	33-5563-42		RTV-345			Contrast-Wire Wound-Panel
B	10KΩ	2						Brightness-Wire Wound-Rear
R2A	75KΩ	½	33-5563-43	QJ-302 *	RTV-241	SBB-711	UF753L	Horiz. Hold-Panel
B	250KΩ	½					UR254L	Vert. Hold-Rear
R3A	2 Meg		33-5564-14	Q18-139X	AT-116	BT-82-S	UT-451	Volume-Tap②1 Meg
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req	Attach to R3A
C	Switch		Not Req.	76-1	SW-A	Not Req.	US-26	Attach to R
R4A	50KΩ	½	33-5565-30	Q11-123	AG-44-S	AB-31	SU-35	Horiz. Osc. Frequency
B	Shaft		Not Req.	RQ	FKS-1/4	AK-1	Not Req.	Attach to R4A
R5A	20KΩ	4	33-5546-43		A10-20K	SVP-996	M20MP	Width-Wire Wound
B	Shaft		Not Req.		FKS-1/4	Not Req.	Not Req.	Attach to R5A
R6A	2.5Meg	½	33-5565-32	Q11-239	AG-84-S	AB-83	SU-565	Height
B	Shaft		Not Req.	RQ	FKS-1/4	AK-1	Not Req.	Attach to R6A
R7A	2.5Meg	½	33-5565-32	Q11-239	AG-84-S	AB-83	SU-565	Vert. Linearity
B	Shaft		Not Req.	RQ	FKS-1/4	AK-1	Not Req.	Attach to R7A

* CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B11-125 & P1-200 (Panel) B11-130 & R1-216 (Rear).

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	PHILCO PART No.	IRC PART No.	NOTES
R8	1 Meg	½		BTS-1 Meg	
R9	1 Meg	½		BTS-1 Meg	
R10	22KΩ	½		BTS-22K	
R11	470KΩ	½		BTS-470K	
R12	1 Meg	½		BTS-1 Meg	Note 1
R13	1 Meg	½		BTS-1 Meg	
R14	1000Ω	½		BTS-1000	
R15	2200Ω	1	66-2224340		Note 2
R16	100KΩ	½		BTS-100K	
R17	1000Ω	½		BTS-1000	
R18	10KΩ	½		BTS-10K	
R19	1000Ω	½		BTS-1000	
R20	15KΩ	2	66-3155340		Note 2
R21	3.3Meg	½		BTS-3.3Meg	
R22	6800Ω	½			
R23	470Ω	½		BTS-470	Note 3
R24	68Ω	½			
R25	330Ω	½		BTS-330	
R26	330Ω	½		BTS-330	
R27	12KΩ	½		BTS-12K	
R28	68Ω	½			
R29	33KΩ	½		BTS-33K	
R30	330Ω	½		BTS-330	
R31	330Ω	½		BTS-330	
R32	12KΩ	½		BTS-12K	
R33	68Ω	½			

RESISTORS (CONT.)

ITEM No.	RATING OHMS	RATING WATT	PHILCO PART No.	IRC PART No.	NOTES
R34	8200Ω	½			
R35	220Ω	½		BTS-220	
R36	330Ω	½		BTS-330	
R37	5600Ω	1	66-2564340	BTA-5600	
R38	100KΩ	½		BTS-100K	
R39	100KΩ	½		BTS-100K	
R40	330KΩ	½		BTS-330K	
R41	3300Ω	½		BTS-3300	
R42	330Ω	½		BTS-330	
R43	1000	½		BTS-1000	
R44	8.2Meg	½		BTS-8.2Meg	
R45	1.2Meg	½		BTS-1.2Meg	
R46	100Ω	½		BTS-100	
R47	2700Ω-5%	½		BTS-2700-5%	
R48	3300Ω	½		BTS-3300	
R49	1.2Meg	½		BTS-1.2Meg	
R50	1.8Meg	½		BTS-1.8Meg	
R51	2200Ω	½		BTS-2200	
R52	1800Ω	7	33-1335-102	1 3/4A-1750	
R53	470KΩ	½		BTS-470K	
R54	100KΩ	½		BTS-100K	Note 4
R55	22KΩ	½		BTS-22K	Note 5
R56 *	68KΩ	1		BTA-68K	
R57	470KΩ	1	66-4474340	BTA-470K	
R58	120KΩ	½			
R59	150Ω	½		BTS-150	
R60	1000Ω	½		BTS-1000	
R61	680KΩ	½		BTS-680K	
R62	22KΩ	1	66-3224340	BTA-22K	
R63	12KΩ	1	66-3124340	BTA-12K	
R64	270Ω	½		BTS-270	
R65	22KΩ	½		BTS-22K	
R66	33KΩ	½		BTS-33K	
R67	150KΩ	½		BTS-150K	
R68	10KΩ	½		BTS-10K	
R69	15KΩ	½		BTS-15K	
R70	10Meg	½		BTS-10Meg	
R71	330KΩ	½		BTS-330K	
R72	270KΩ	½		BTS-270K	
R73	470KΩ	½		BTS-470K	
R74	270Ω	1	66-1274340	BTA-270	
R75	5600Ω-5%	½		BTS-5600-5%	
R76	220Ω	½		BTS-220	
R77	68KΩ	½		BTS-68K	
R78	1.2Meg	½		BTS-1.2Meg	
R79	4700Ω	½		BTS-4700	
R80	39KΩ-5%	½		BTS-39K-5%	
R81	240KΩ-5%	½		BTS-240K-5%	
R82	220KΩ	½		BTS-220K	
R83	270KΩ	½		BTS-270K	
R84	15KΩ	½		BTS-15K	
R85	100KΩ	½		BTS-100K	
R86	5.6Meg	½		BTS-5.6Meg	
R87	1.2Meg	½		BTS-1.2Meg	
R88	5600Ω	1	66-2564340	BTA-5600	
R88A	750Ω	6	33-3435-35		
B	750Ω	6			
R90	1 Meg	½		BTS-1 Meg	
R91	10KΩ	½		BTS-10Meg	
R92	6800Ω	1	66-2685340	BTA-6800	
R93	8200Ω	1	66-2824340	BTA-8200	
R94	12KΩ	2	66-3125340	BTB-12K	
R95	10KΩ	½		BTS-10K	
R96	10KΩ	½		BTS-10K	
R97	4700Ω	½		BTS-4700	
R98	4700Ω	½		BTS-4700	
R99	180KΩ	½		BTS-180K	
R100	15KΩ	½		BTS-15K	
R101	330KΩ	1		BTS-330K	
R102	3300Ω	½		BTS-3300	
R103	560KΩ	½		BTS-560K	
R104	680KΩ	½		BTS-680K	
R105	1 Meg	½		BTS-1 Meg	
R106	220KΩ	½		BTS-220K	Note 6
R107	82KΩ	½	66-3828344		Note 2
R108	330KΩ-5%	½	66-4338244		Note 2
R109	3.3Meg	½	66-5338344		Note 2
R110	390KΩ-5%	½	66-4398244		Note 2
R111	1.2Meg	½	66-5128344		Note 2
R112	8200Ω	½		BTS-8200	
R113	470KΩ	½		BTS-470K	
R114	18KΩ	½	66-3188344		Note 2
R115	47KΩ	½	66-3478244		Note 2
R116	180KΩ	½	66-4188344		Note 2
R117	27KΩ	½		BTS-27K	
R118	680KΩ	½		BTS-680K	Note 7
R119	10KΩ	2	66-3105340	BTB-10K	
R120	4200Ω	5	33-1335-101		
R121	150KΩ-5%	½		BTS-150K-5%	
R122	15KΩ	½		BTS-15K	
R123	120KΩ	½		BTS-120K	
R124	5600Ω	2	66-2565340	BTB-5600	
R125	*	*			
R126	7.5Ω	15	33-3448		
R127	12KΩ	½		BTS-12K	
R128	47KΩ	1	66-3474340	BTA-47K	
R129	56KΩ	½		BTS-56K	
R130	10Ω	½			

Note 1 Items R11 & C11 are combined in one unit.
Note 2 Special resistor, order only by part no.
Note 3 Some models use a 330Ω resistor in this application.
Note 4 Some models use a 120KΩ resistor in this application.
Note 5 Some models use a 82KΩ resistor in this application.
Note 6 Not used in all models.
Note 7 Some models use a 2.2Meg resistor in this application.
* Resistor consists of 17" no. 24 wire.

TRANSFORMER (FILAMENT)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC ⑤ .66A.	6.3VAC ⑤10A.			32-8538	P-6308 ①	P-2948	FO-610	F-21A

① Drill new mtg. holes.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	170Ω	330Ω	32-8431-4 32-8431-2 ①			TBO-4		Vert. Osc. Trans.
T3	782Ω tap ⑤ 17Ω, 39Ω, 62Ω	0Ω	32-8555					Horiz. Output Trans.
T4	307Ω tap ⑤ 9Ω		32-8539					Vert. Output Trans.
T5A B	42Ω 48Ω		32-9648		MDF-71	TY-8		Horiz. Deflection Coils Vert. Deflection Coils

① Alternate Vert. Osc. Trans.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T6	4.3KΩ	3.1Ω	564Ω	.96Ω	32-8525-1 32-8242-11 ①	A-3877	A-2930	RO-8	S-5X	① Alternate Audio Output.

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	PHILCO PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	10"	PM	3.1Ω	36-1646-5 ② 36-1646-10 ①	ST-119 Mod. P10-T	10A31	① Alternate speaker ② Includes Filter Choke

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D.C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.225A	57Ω	1.1 Hy.	Part of Spkr.		C-2996 ①	TR-1233 ①	C-2K

① Drill one new mtg. hole.

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3924 MEADE ST.
DENVER, COLORADO

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	PHILCO PART No.	MERIT PART No.	NOTES
L2	Ant. Trans.	.8Ω	.1Ω	76-7071		
L3	Ant. Trans.	.8Ω	.1Ω	76-7071		
L4	FM Trap	0Ω				
L5	Ant. Coils	0Ω		76-7077		Includes switch wafer & coils
L6	Fil. Choke	0Ω		32-4112-2		
L7	Fil. Choke	0Ω		32-5132		
L8	150Ω Artifical Coiled Line	0Ω	.6Ω	32-4527		
L9	RF Choke	.3Ω		32-4112-22		
L10	RF Coils	0Ω		76-6895		Includes switch wafer & coils
L11	Fil. Choke	0Ω		32-4112-2		
L12	Fil. Choke	0Ω		32-4112-2		
L13	Mixer Grid Coils	0Ω		76-7098		Includes switch wafer & coils
L14	Osc. Coils	0Ω		76-6784		Includes switch wafer & coils
L15	RF Choke	.2Ω		32-4112-25		
L16	1st.Video IF	.3Ω		32-4359-12		Tapped ⑤ .2Ω
L17	2nd.Video IF	.2Ω		32-4486	TV-112	
L18	28.1MC Trap	0Ω		32-4303-3		
L19	3rd. Video IF	.2Ω		32-4486	TV-112	
L20	21.85MC Trap	0Ω		32-4496		
L21	Fil. Choke	.1Ω		32-4112-15		
L22	4th.Video IF	.3Ω	.2Ω	32-4486-6		
L23	5th.Video IF	.2Ω		32-4486	TV-112	
L24	RF Choke	.1Ω		32-4112-15		
L25	Fil. Choke	.1Ω		32-4112-15		
L26	Series Peaking Coil	2Ω		32-4143-16	TV-180	40 Microhenries
L27	Shunt Peaking Coil	3.8Ω		32-4143-17	TV-181	100 Microhenries
L28	4.5MC Trap	1.8Ω		32-4463-2	TV-151	
L29	Series Peaking Coil	.4Ω		32-4143-18		10 Microhenries
L30	Shunt Peaking Coil	4.8Ω		32-4480-9	TV-184	180 Microhenries
L31	Shunt Variable Peaking Coil	5.8Ω		32-4467-7 -		57 - 165 Microhenries
L32	Sound IF	5Ω		32-4449A		
L33	Ratio Det.	5.3Ω	.8Ω CT	32-4450-5		Tertiary Winding - .8Ω
L34	Fil. Choke	.1Ω		32-4112-15		
L35	Horiz. Osc.	15Ω	45Ω	32-8551		Cathode Winding - 60Ω
L36	Anti-ringing Coil	45Ω		32-4542-2		2.5 Microhenries
L37	RF Choke	2Ω		32-4112-24		
L38	RF Choke	2Ω		32-4112-24		

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	PHILCO PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	NOTES
M1	.290A	34-8003-7	NH5	6Q82	1023A	6S350	
M2	.290A	34-8003-7	NH5	6Q82	1023A	6S350	

FUSES

ITEM No.	TYPE	RATING	PHILCO PART No. FUSE	PHILCO PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M3	MDV	1 6/10A 125V.	45-2656-23		31501.6 Slo-Blo P/T 311010		MDV 1 6/10	
M4	Length of #26 Wire							

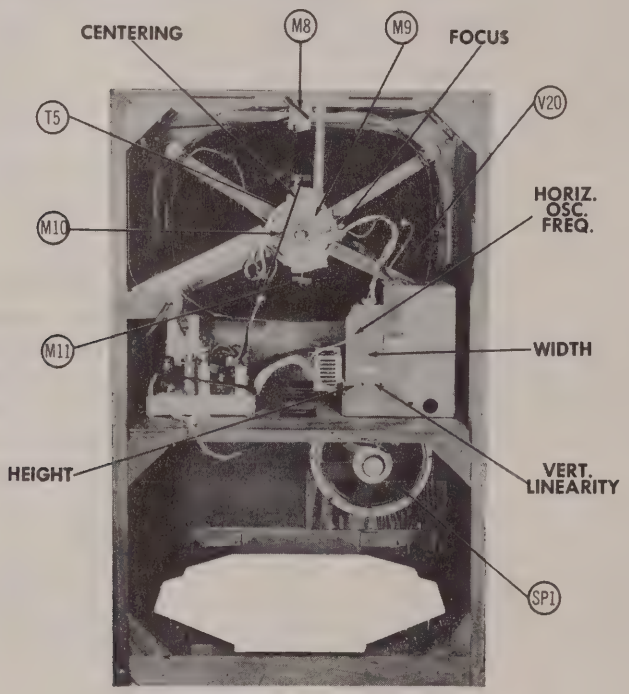
PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					PHILCO PART No.		
M5	Bayonet	6-8	.15	Brown			Type # 47

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M6	RF Tuner	76-7070	
M7	Switch & Cable Assembly	76-7862	Normal & Fringe
M8	Switch	42-1979	Built-in Antenna (Models 53-T2260, 53-T2262 & 53-T2264)
M9	Focus Magnet	76-6126-4	
M10	Ion Trap	76-6077-2	
M11	Magnets	76-6594	Anti-pin Cushion Correction
B1	Trimmer	31-6473-22	Horiz. Lock (45-370MMF)
	Knob	54-4799	Brightness & Vert. Hold
	Knob	76-6863-22	Channel Selector
	Knob	76-6048	Contrast & Horiz. Hold
	Knob	76-6104	Fine Tuning
	Knob	76-6581-1	Off/on Volume
	Knob & Bracket Assembly	76-7710	Built-in Antenna
	Mask	54-8567-8	Model 53-T2126
	Mask	54-8573-6	Models 53-T2260 & 53-T2262
	Mask	54-8573-11	Model 53-T2264
	Safety Glass	54-7943-52	Model 53-T2126
	Safety Glass	54-7943-56	Models 53-T2260, 53-T2262 & 53-T2264
	Cabinet	10896-6	Table (Mahogany) Model 53-T2126
	Cabinet	10916	Console (Mahogany) Model 53-T2260
	Cabinet	10916-1	Console (Mahogany) Model 53-T2262
	Cabinet	10922	Console (Mahogany) Model 53-T2264
	Cabinet Doors	45-6720	Matched Pair Model 53-T2264



CABINET-REAR VIEW

DISASSEMBLY INSTRUCTIONS

1. Remove 7 push on type control knobs from front panel, Remove clear plastic shield from tuner shaft.
2. Disconnect built-in antenna & tuner transmission line.
3. Remove 14 wood screws, disconnect fringe lug from RF chassis. Remove rear cover.
4. Disconnect speaker, defection & focus plug, CRT socket, HV lead, interchassis connecting cable, volume control cable.
5. Remove 1 metal screw. Remove copper ground strap from HV cage.
6. Remove 8 chassis bolts. Remove RF & Def. chassis.
7. Remove 4 speaker nuts. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.

PROPERTY O.
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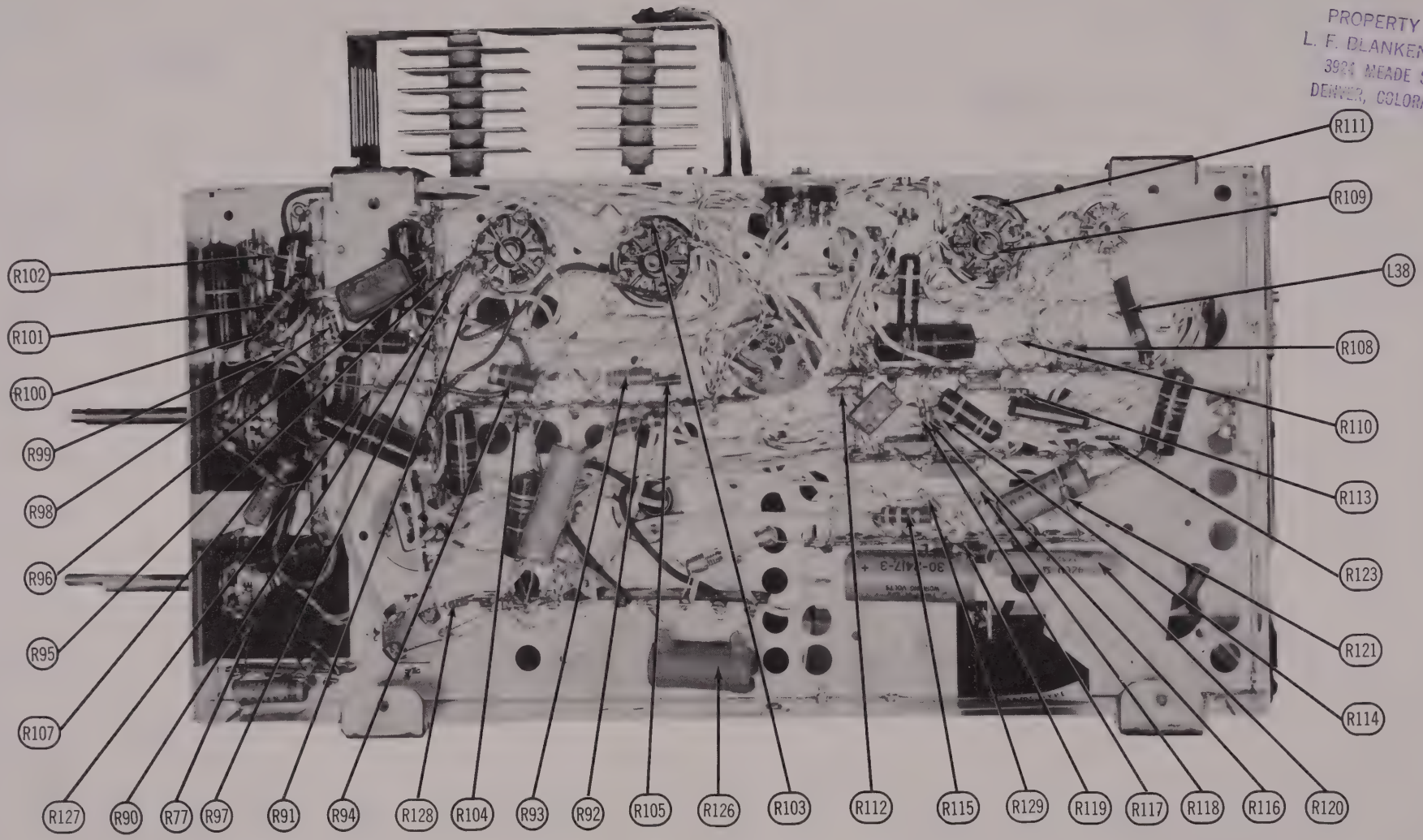
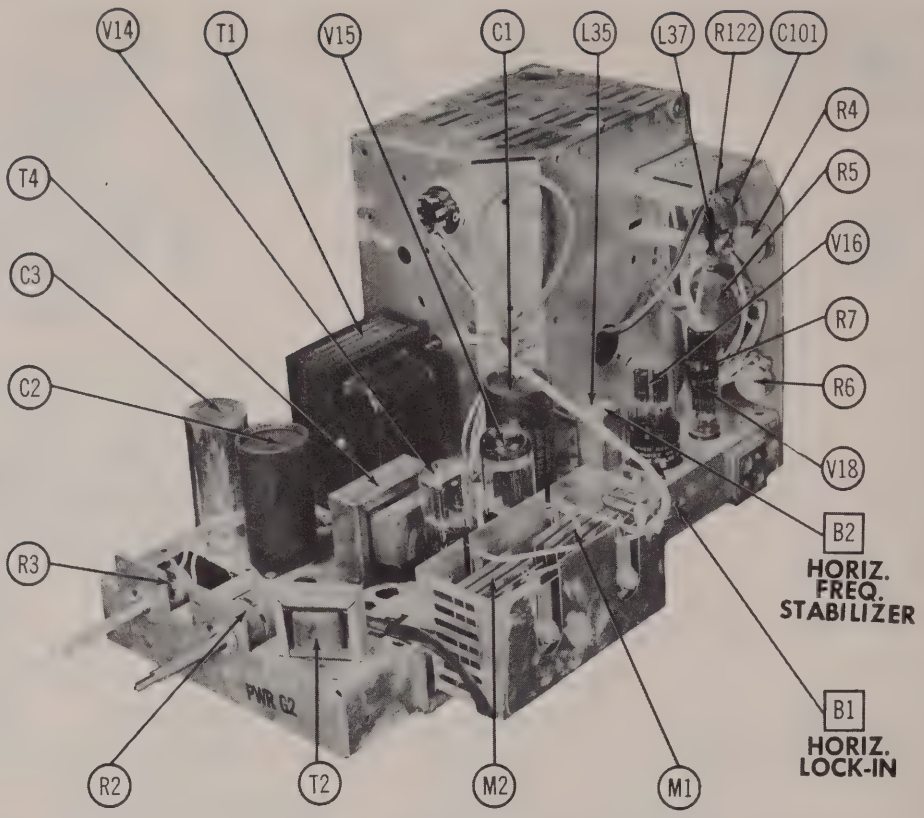
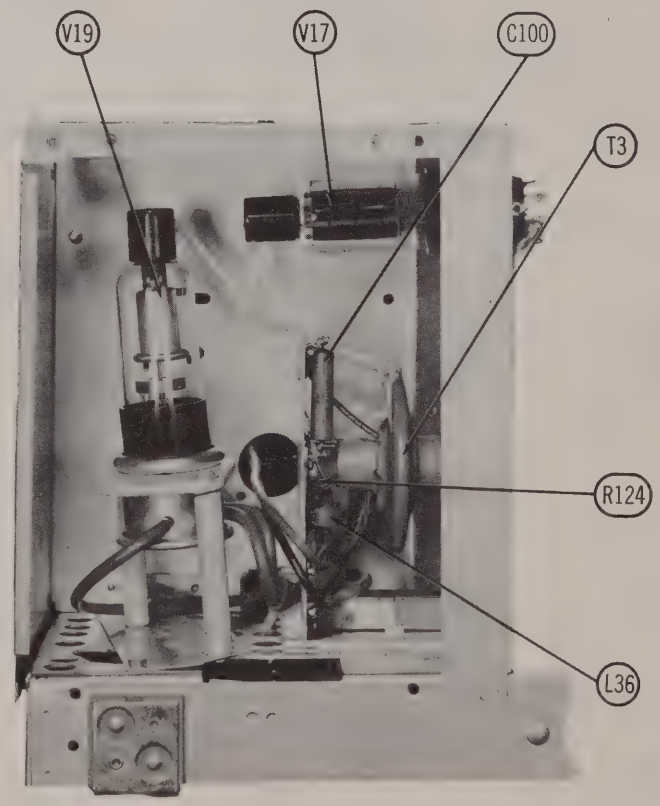
DENVER, COLORADO



SWEEP CHASSIS- BOTTOM VIEW- RESISTOR AND INDUCTOR IDENTIFICATION



SWEEP CHASSIS-TOP VIEW



HIGH VOLTAGE COMPARTMENT

PROPERTY OF
F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

RADIO CRAFTSMEN
MODEL C400

TRADE NAME	Radio Craftsmen Model C400
MANUFACTURER	Radio Craftsmen Inc., 4401 Ravenswood Ave., Chicago 40, Ill.
TYPE SET	AC Operated Audio Amplifier
TUBES (Five)	Types 6J5 AF Amp., 6SN7GT AF Amp.-Phase Inv., (2) 6V6GT Audio Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .62 Amp. @ 117 Volts AC

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PARTS LIST AND DESCRIPTIONS

RADIO CRAFTSMEN
MODEL C400

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Radio Craftsmen PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	AF Amplifier	6J5	6J5	6Q	
V2	AF Amplifier-Phase Inverter	6SN7GT	6SN7GT	8BD	
V3	Audio Output	6V6GT	6V6GT	7AC	
V4	Audio Output	6V6GT	6V6GT	7AC	
V5	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: Radio Craftsmen PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲20	400	188032	AFH3-45		UP22245		FP391.1	TVL-3789	
B	■60	400		PRS450/20		BR6045		TC65	TVA-1608	
C	▲20	350								
D	20	350								
C2	100	50	CE8H0510P	PRS50/100		BRH501		TC3501	TVA-1310	
C3	.1	400	CP10M4104M	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C4	390	500	CM20A391J	1469-0004		5R5T4		MCB243	MS-34	
C5	.047	400	CP10M4473M	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C6	.047	400	CP10M4473M	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C7	100	500	CM20A101K	1468-0001	D6-101	5W5T1	GP1K-101	MC235	1FM-31	

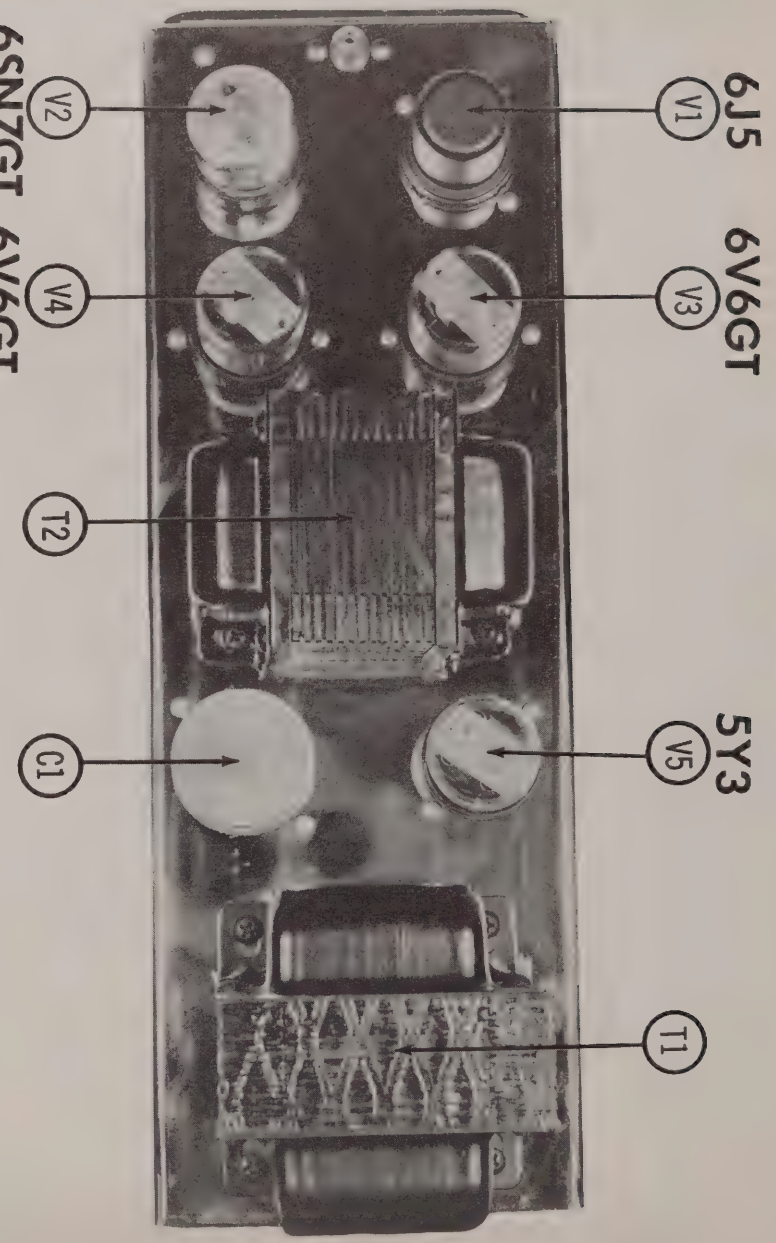
RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA: Radio Craftsmen PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R1	470KΩ	½	RC20AE474K	BTS-470K	
R2	6800Ω	½	RC20AE682K	BTS-6800	
R3	100KΩ	½	RC20AE104K	BTS-100K	
R4	470KΩ	½	RC20AE474K	BTS-470K	
R5	3900Ω-5%	½	RC20AE392J	BTS-3900-5%	
R6	220KΩ	½	RC20AE224K	BTS-220K	
R7	2700-5%	½	RC20AE272J	BTS-2700-5%	
R8	47KΩ	½	RC20AE473KB		Note
R9	47KΩ	½	RC20AE473KB		Note

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA: Radio Craftsmen PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R10	470KΩ	½	RC20AE474K	BTS-470K	
R11	300Ω	4	RW4301K	1 3/4A-300	
R12	470KΩ	½	RC20AE474K	BTS-470K	
R13	12KΩ-5%	½	RC20AE123J	BTS-12K-5%	
R14	10KΩ	½	RC20AE103K	BTS-10K	
R15	2200Ω	2	RW2222K	BTB-2200	
R16	100Ω	2	RC40AE101K	BW-2-100	
R17	2.2Ω	½	RW02R2K	BW-½-2.2	

Note Resistors matched within 2%.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

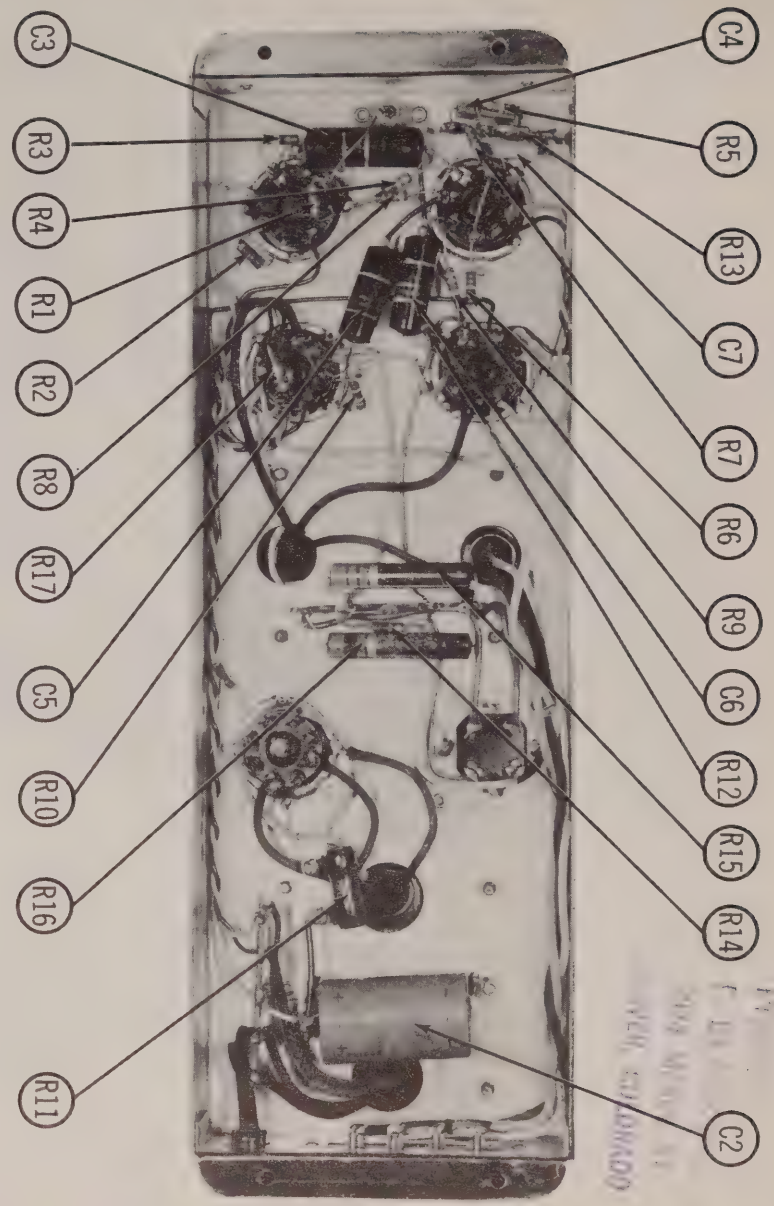
TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	Radio Craftsmen PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC @ .62A	676VCT .080ADC	5VAC @ 2A	6.3VAC @1.7A	19S211	PC-8410	P-3152	PV-120H	R-11A

TRANSFORMER (AUDIO OUTPUT)

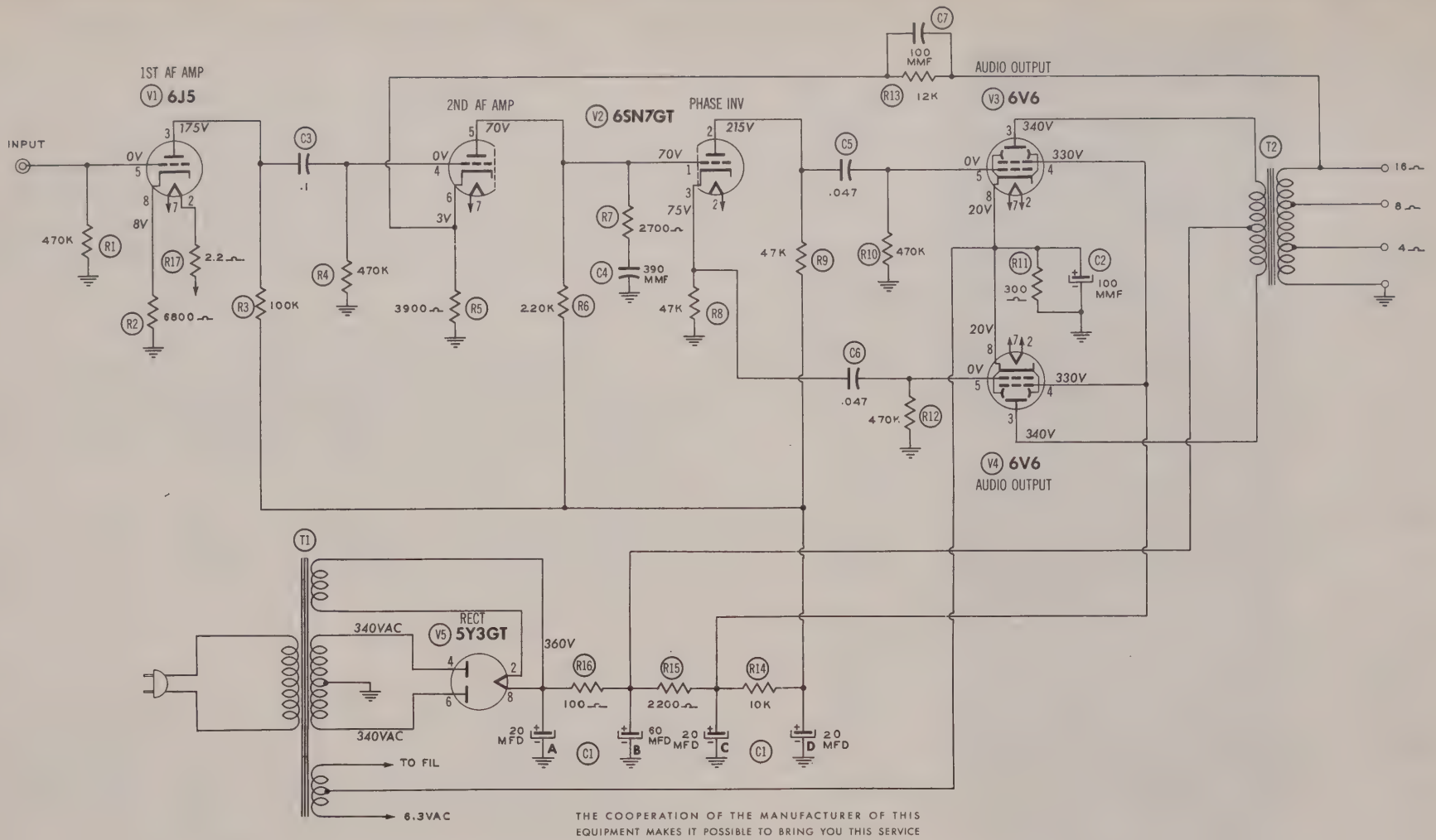
ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		Radio Craftsmen PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T2	10.3KΩ CT	16Ω tap @ 8Ω, 4Ω	498Ω CT	1.08Ω tap @ .66Ω, .56Ω	19S015	A-3311	A-3101		HSM-81 ①	① Drill new mtg hole

CHASSIS—BOTTOM VIEW



RADIO CRAFTSMEN
MODEL C400

RADIO CRAFTSMEN
MODEL C400



THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6J5	0Ω	300Ω	†112KΩ	†12KΩ	470KΩ	0Ω	300Ω	6.8KΩ
V 2	6SN7GT	†232KΩ	†59KΩ	47KΩ	470KΩ	†232KΩ	3KΩ	300Ω	300Ω
V 3	6V6GT	0Ω	300Ω	†349Ω	†2.3KΩ	470KΩ	300Ω	300 Ω	300Ω
V 4	6V6GT	0Ω	300Ω	†349Ω	†2.3KΩ	470KΩ	†12KΩ	300Ω	300Ω
V 5	5Y3GT	INF	80KΩ	INF	100Ω	INF	110Ω	INF	80KΩ

† MEASURED FROM PIN 2 OF V5

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1-DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2-Socket connections are shown as bottom views.
3-Measured values are from socket pin to common negative.
4-Line voltage maintained at 117 volts for voltage readings.
5-Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6-All controls at minimum, proper output load connected.

STEELMAN
MODEL 330

STEELMAN
MODEL 330

TRADE NAME	Steelman Model 330
MANUFACTURER	Steelman Phono & Radio Co., Inc. 12-30 Anderson Ave., Mt. Vernon, N.Y.
TYPE SET	AC Operated Audio Amplifier With 3 Speed Manual Record Player
TUBES (Three)	Types 7F7 AF Amp., 7C5 Audio Output, 7Y4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .37 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		STEELMAN PART No.	STANDARD REPLACEMENT		
V1	AF Amplifier	7F7	7F7	8AC	
V2	Audio Output	7C5	7C5	6AA	
V3	Rectifier	7Y4	7Y4	5AB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	STEELMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	■30	300		AFH3-99		UP3330V2		FP331	TVL-3620	
B	▲25	300								
C	20	25								
C2	4	25		PRS150/4		BR550		TC30	TVA-1203	
C3	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C4	200	500		1468-0002	D6-201	5W5T2	GP2K-201		1FM-32	
C5	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C6	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C7	.0018	1500		P1688-002		PTE16D2		PT16D2	MB-D2	
C8	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C9	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	STEELMAN PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	VC-25	Q13-133	AG-60-Z	B-60	U-48	Mike Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
R2A	500KΩ	½	VC-1005	Q13-133	AG-60-Z	B-60-S	U-48	Phono Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R2A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R2A
R3A	500KΩ	½	VC-1005	Q13-133	AG-60-Z	B-60-S	U-48	Tone
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R3A

RESISTORS

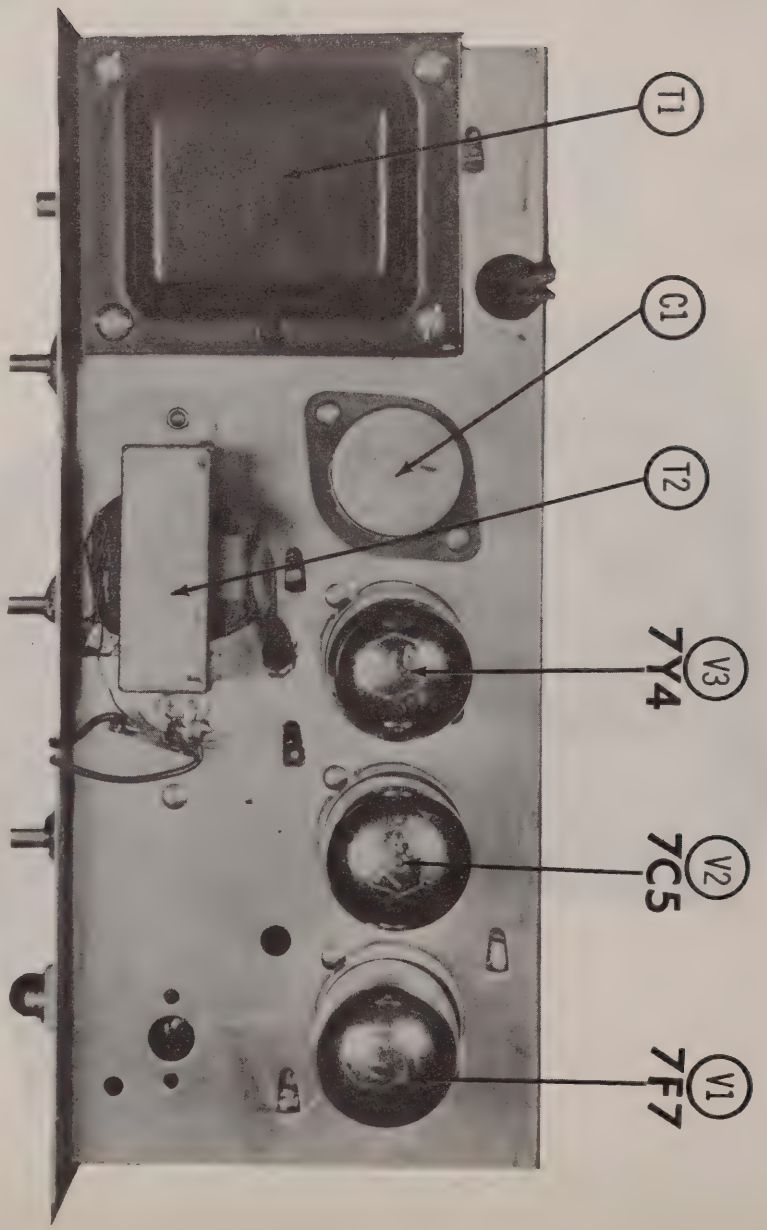
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	STEELMAN PART No.	IRC PART No.	
R4	1 Meg	1		BTA-1 Meg	
R5	2.2Meg	½		BTS-2.2Meg	
R6	220KΩ	½		BTS-220K	
R7	470KΩ	½		BTS-470K	
R8	470KΩ	½		BTS-470K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	STEELMAN PART No.	IRC PART No.	
R9	2200Ω	½		BTS-2200	
R10	68KΩ	½		BTS-68K	
R11	330Ω	1		BTA-330	
R12	10KΩ	1		BTA-10K	

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	STEELMAN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC @ .33A	590VCT .049ADC	6.3VAC @ 1.22A		310	PM-8407	P-2950		R-5B

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		STEELMAN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T2	4.5KΩ	5.1Ω	400Ω	.57Ω	P-170	A-3877 ①	A-2930 ①	RO-9 ①	S-5X ①	① Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	STEELMAN PART No.	VIKING PART No.	QUAM PART No.	
SP1	12"	PM	3.3Ω	SP-12	12J11	12A31	

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	STEELMAN PART No.	WALCO PART No.	JENSEN PART No.	
M2		W-5A or W-5S and W-5MGA or W-5MGS	A75LP or A85LP and A-75 or A-85	

PHONO CARTRIDGE and NEEDLE

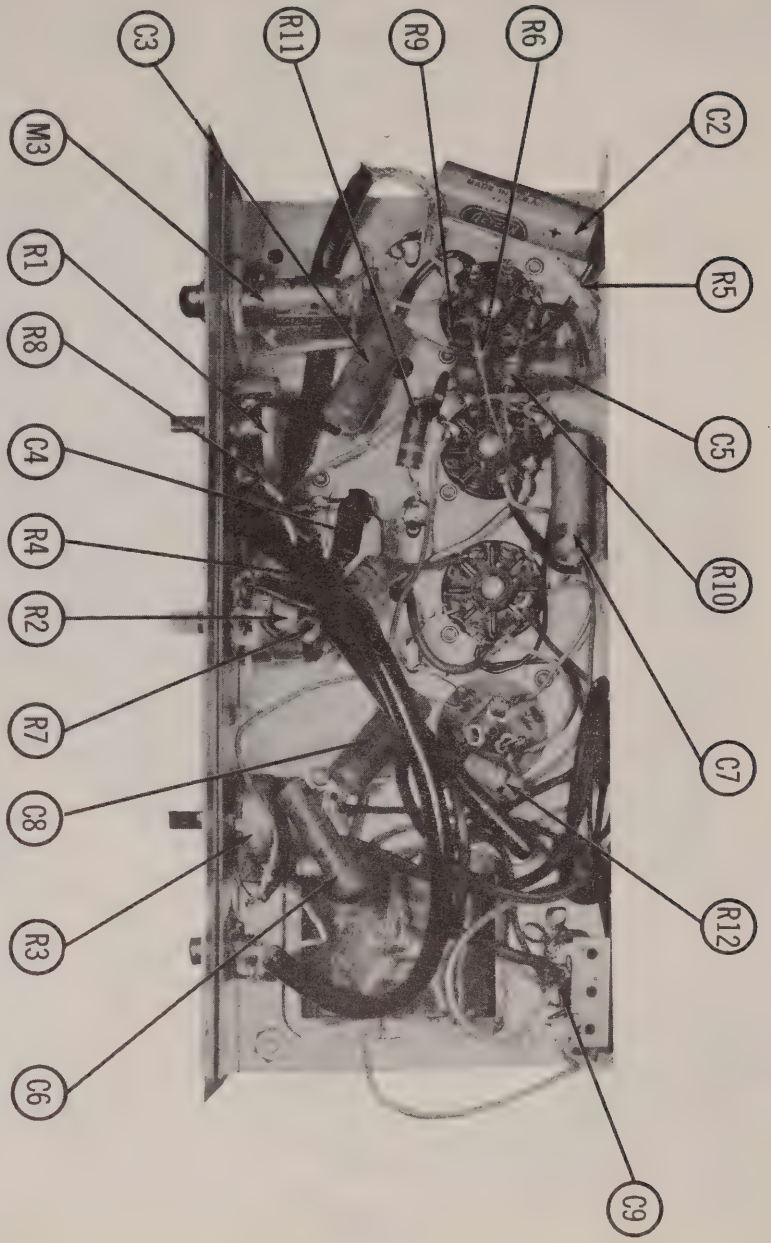
ITEM No.	REPLACEMENT DATA							REMARKS
	STEELMAN PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1		ACD-2J * 400-D	A-1 A-3					* Complete tone arm & cartridge assembly.

ASTATIC LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENT SEE BELOW.

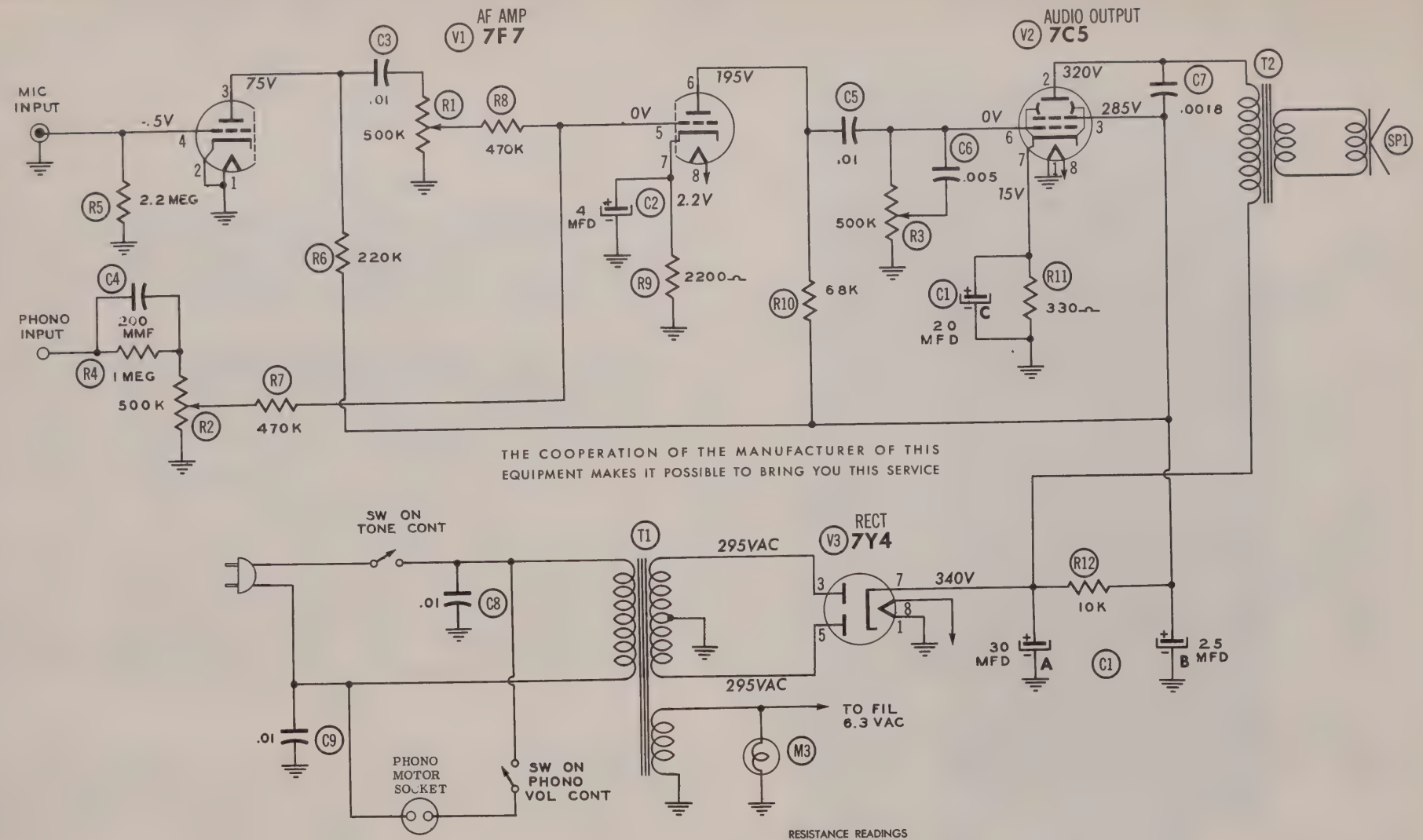
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					STEELMAN PART No.		
M3	Bayonet	6-8	.15	Brown			Type No. 47

CHASSIS—BOTTOM VIEW



STEELMAN MODEL 330



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	7F7	0Ω	0Ω	†230KΩ	2.2Meg	235KΩ	†78KΩ	2.2KΩ	.1Ω
V 2	7C5	0Ω	†400Ω	†10KΩ	INF	INF	500KΩ	330Ω	.1Ω
V 3	7Y4	0Ω	INF	300Ω	INF	INF	310Ω	60KΩ	.1Ω

† MEASURED FROM PIN 7 OF V3

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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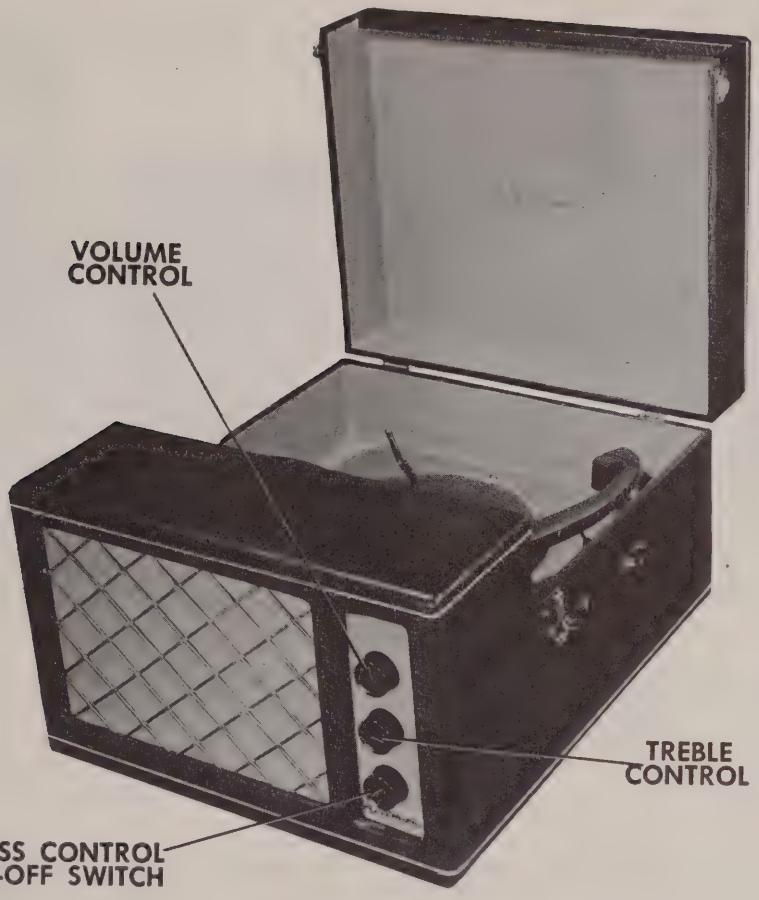
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLO.

STEELMAN
MODEL 5000



STEELMAN
MODEL 5000

TRADE NAME	Steelman Model 5000
MANUFACTURER	Steelman Phono & Radio Corp., 12-30 Anderson Ave., Mt. Vernon, N.Y.
TYPE SET	AC Operated Audio Amplifier With 3 Speed Automatic Record Changer
TUBES (FOUR)	Types 7F7 Pre. Amp., 7F7 AF Amp., 7C5 Audio Output, 7V7 Rectifier.
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .33 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER UNIT-SEE MILWAUKEE MODEL 12300 PHOTOFACT SET # 138 FOLDER #5 OR RECORD CHANGER MANUAL CM-4.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

STEELMAN MODEL 5000

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		STEELMAN PART No.	STANDARD REPLACEMENT		
V1	Pre-Amplifier	7F7	7F7	8AC	
V2	AF Amplifier	7F7	7F7	8AC	
V3	Audio Output	7C5	7C5	6AA	
V4	Rectifier	7Y4	7Y4	5AB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	STEELMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	■30	300		AFH3-99		UP3330V2		FP331	TVL-3620	
B	▲25	300								
C	20	25								
C2	4	25		PRS150/4		BR550		TC30	TVA-1203	
C3A	■20	150		AFH2-08		UP2215		FP330.3	TVL-2415	
B	▲10	150								
C	5	150								
C4	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C5	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C6	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C7	.02	600		P688-02	D6-203	PTE6S2		PT612	6TM-S2	
C8	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C9	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C10	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C11	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C12	.02	600		P688-02	DF-203	PTE6S2		PT612	6TM-S2	
C13	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C14	.002	600		P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C15	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C16	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	

CONTROLS

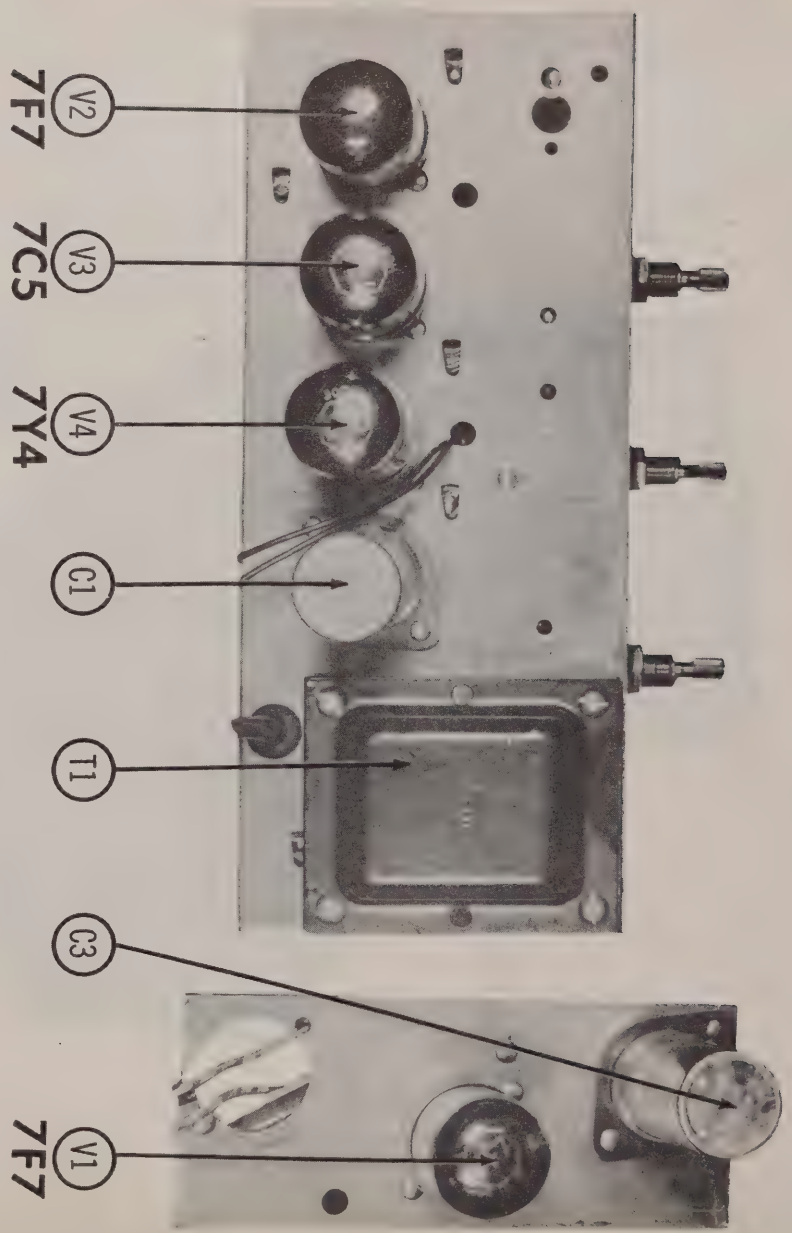
ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	STEELMAN PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	1 Meg	½	VC-29	Q11-137	AG-61-S	BSK-70	U-54	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
R2A	500KΩ	½	VC-30	Q13-133	AG-60-Z	BSK-60-S	U-48	Bass
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R2A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R2A
R3A	1 Meg	½	VC-29	Q11-137	AG-61-S	BSK-70	U-54	Treble
B	Shaft		Not Req.	Not Req.	KSS-3	BSK-70	Not Req.	Attach to R3A

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	STEELMAN PART No.	IRC PART No.	
R4	3.3Meg	½		BTS-3.3Meg	
R5	68KΩ	½		BTS-68K	
R6	220KΩ	½		BTS-220K	
R7	27KΩ	1		BTA-27K	
R8	100KΩ	½		BTS-100K	
R9	3.3Meg	½		BTS-3.3Meg	
R10	68KΩ	½		BTS-68K	
R11	33KΩ	½		BTS-33K	
R12	33KΩ	½		BTS-33K	
R13	68KΩ	½		BTS-68K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	STEELMAN PART No.	IRC PART No.	
R14	1500Ω	½		BTS-1500	
R15	68KΩ	½		BTS-68K	
R16	50KΩ	½			
R17	22KΩ	½		BTS-22K	
R18	470KΩ	½		BTS-470K	
R19	330Ω	1		BTA-330	
R20	33KΩ	½		BTS-33K	
R21	22KΩ	½		BTS-22K	
R22	10KΩ	1		BTA-10K	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	STEELMAN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC @.33A	590VCT .049ADC	6.3VAC @1.22A		310	PM-8707	P-2950		R-5B

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		STEELMAN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T2	4.5KΩ	3.1Ω	400Ω	.57Ω	P-170	A-3823 ①	A-2930 ①	RO-8 ①	S-5X ①	① Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	STEELMAN PART No.	JENSEN PART No.	QUAM PART No.	
SP1	8"	PM	3.1Ω	SP-80	ST-115 Mod. P8-V	8A31	

PHONO CARTRIDGE

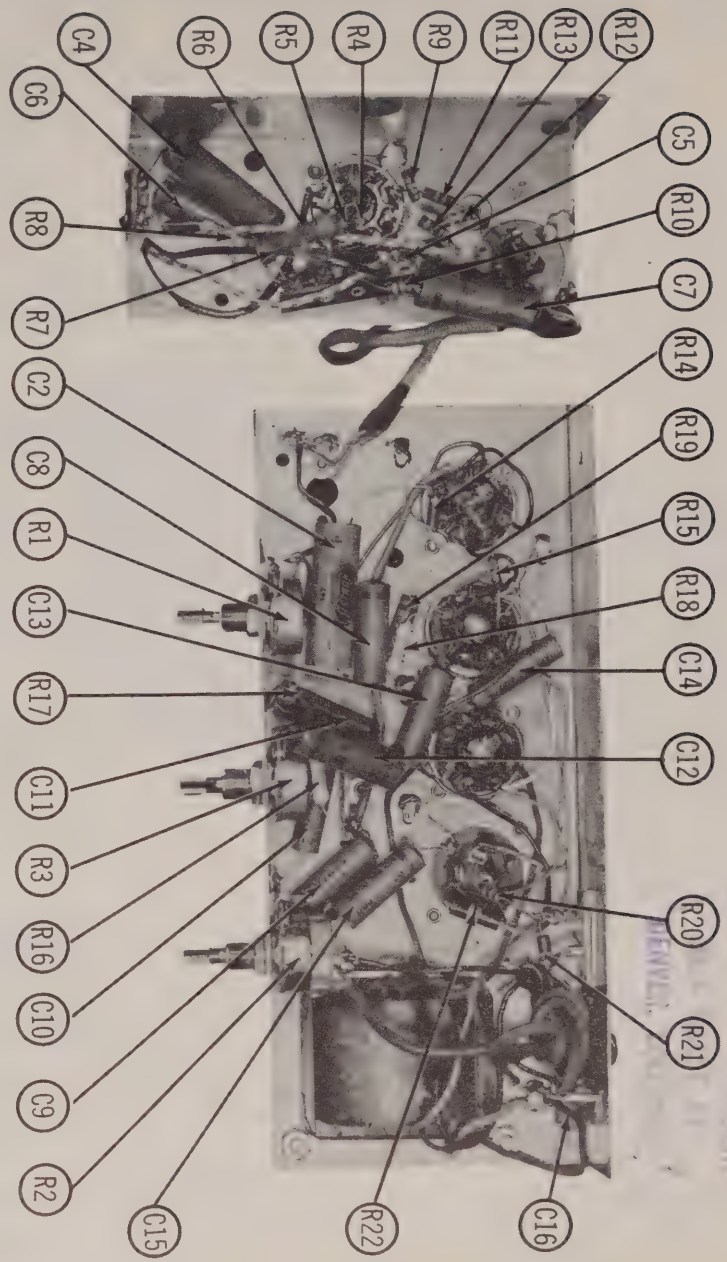
ITEM No.	REPLACEMENT DATA							REMARKS
	STEELMAN PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1								

PHONO NEEDLE

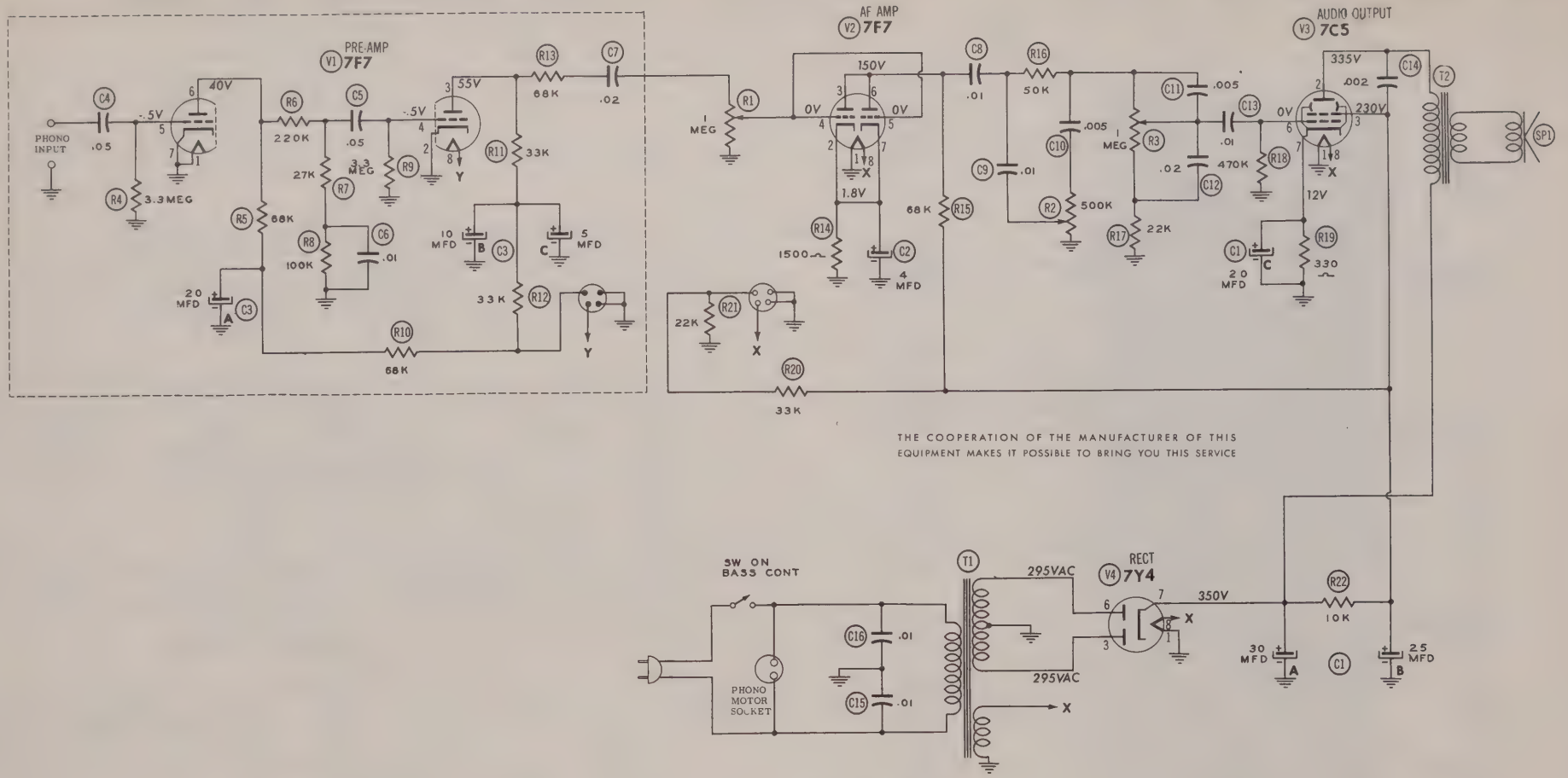
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	STEELMAN PART No.	WALCO PART No.	JENSEN PART No.	
M2		W-66TPS	GE-11	

CHASSIS—BOTTOM VIEW



STEELMAN MODEL 5000



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	7F7	0Ω	0Ω	†110KΩ	3.3Meg	3.3Meg	†120KΩ	0Ω	.2Ω
V 2	7F7	0Ω	1.5KΩ	†78KΩ	120Ω	120Ω	†78KΩ	1.5KΩ	.2Ω
V 3	7C5	0Ω	†400Ω	†10KΩ	INF	INF	470KΩ	330Ω	.2Ω
V 4	7Y4	0Ω	INF	310Ω	INF	INF	330Ω	45KΩ	.2Ω

† MEASURED FROM PIN 7 OF V4.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TAPE MASTER
MODEL PT-121

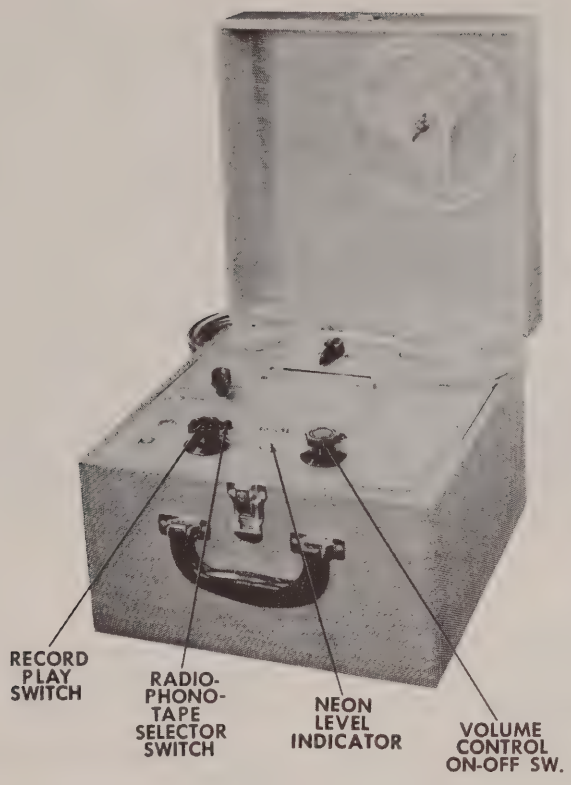

Figure 1

TAPE MASTER
MODEL PT-121

TAPE MASTER PT-121

GENERAL INFORMATION

The Tape Master Tape Recorder, Model PT-121, is designed to magnetically record on a standard 5" or 7" reel of tape, two tracks instead of one, which doubles the playing time.

This machine records at a constant speed of 7.5" per second. This along with its "two track" recording system, allows you to record a full one hour program on a 7" reel of tape, and a half hour program on a 5" reel of tape.

This unit is intended for use with an external amplifier and speaker.

The Tape Master Model PT-121 is designed to operate from 105-125 volts, 60 cycle AC. Do Not Connect to DC Power Source.

Manufactured by:

Tape Master Incorporated
13 West Hubbard Street
Chicago 10, Illinois

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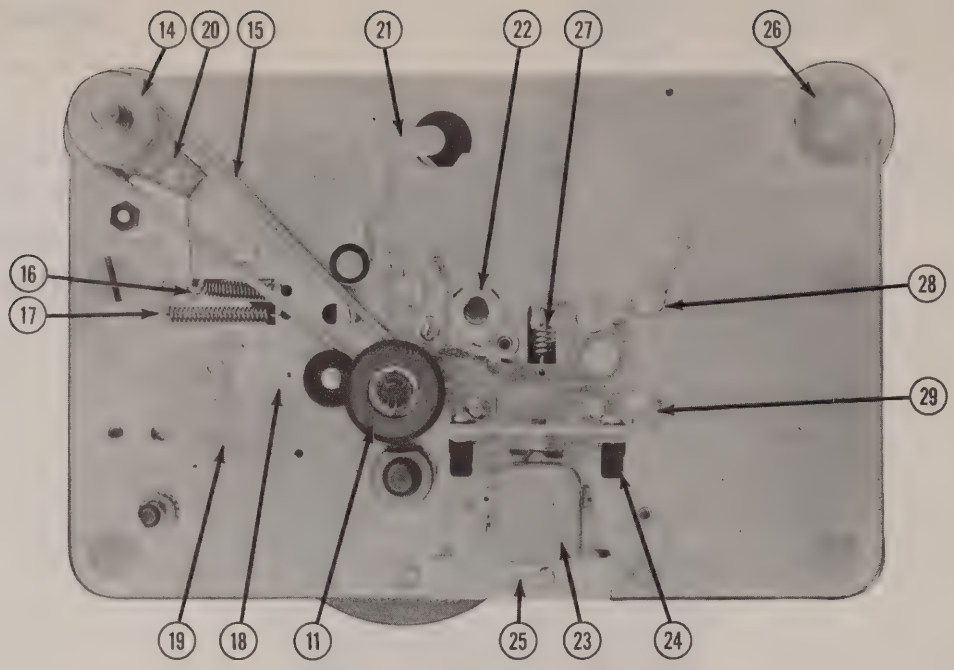


Figure 2

OPERATING INSTRUCTIONS

Preparing the Tape Master for Recording -

1. Connect the output of the PT-121 to an external amplifier and speaker.

2. Insert the line cord into a convenient wall receptacle of the proper rating.

3. Place a reel of tape on the right hand spindle (26) so that the tape is pulled from the reel in a clockwise direction.

NOTE: This recorder uses Type "B" wound tape, i.e. the dull magnetic coated side faces the outside of the reel. If the tape to be used is Type "A" (coated side facing inward), place the reel on the left hand spindle (14), so that the tape will lead-off in a clockwise direction. Bring the tape behind the control lever housing (not through head slot between reels) direct to empty reel on right hand spindle and "Rewind".

4. Place an empty reel on the left hand spindle. Be sure that both reels are engaged with the drive pin on the spindles.

5. Pull about one foot of tape from the supply reel and feed it through the recording head slot and then through one of the radial slots in the empty reel. Use a lead pencil to hold the tape in place and rotate the reel clockwise until the tape is secured to the reel.

6. Turn the volume control on the PT-121 all the way on.

7. Turn the external amplifier volume up until a hum is heard in the speaker.

8. Reverse the AC plug connection on both the recorder and external amplifier, one at a time.

9. Determine which plug connection results in a lower hum level and leave each power cord connected for this condition.

10. Turn the "Play Record" knob to "Record" position.

11. If a microphone recording is to be made, plug the microphone into the "Mic." input jack.

NOTE: When a microphone is plugged into the "Mic." jack, the "Phono-Radio" input is automatically disconnected. To use the "Phono-Radio" input, the microphone plug must be removed from the "Mic." jack.

12. If making a recording from a radio tuner or phonograph pickup, connect tuner or pickup into the "Phono-Radio" input.

13. If a recording is to be made from a table, or console type radio, phonograph, or television receiver, a special cable is required, with a cable plug on one end and two spring clips on the other end. Connect one of the spring clips to each voice coil lead on the radio, phono, or television receiver speaker and insert the cable plug into the "Phono-Radio" input on the recorder.

14. The recording level neon lamp is used to indicate proper volume setting when recording. Adjust the volume control so that the neon lamp flashes intermittently when normal conversation or music is played into the microphone, or when radio, phono, or television program material is connected into the "Radio-Phono" input.

15. The "Monitor" jack is provided so that head phones can be used to listen to the actual signal, which is going on the tape while a recording is being made. Either crystal or high impediance magnetic type head phones can be used.

16. Turn the control knob (1) to the "Forward"

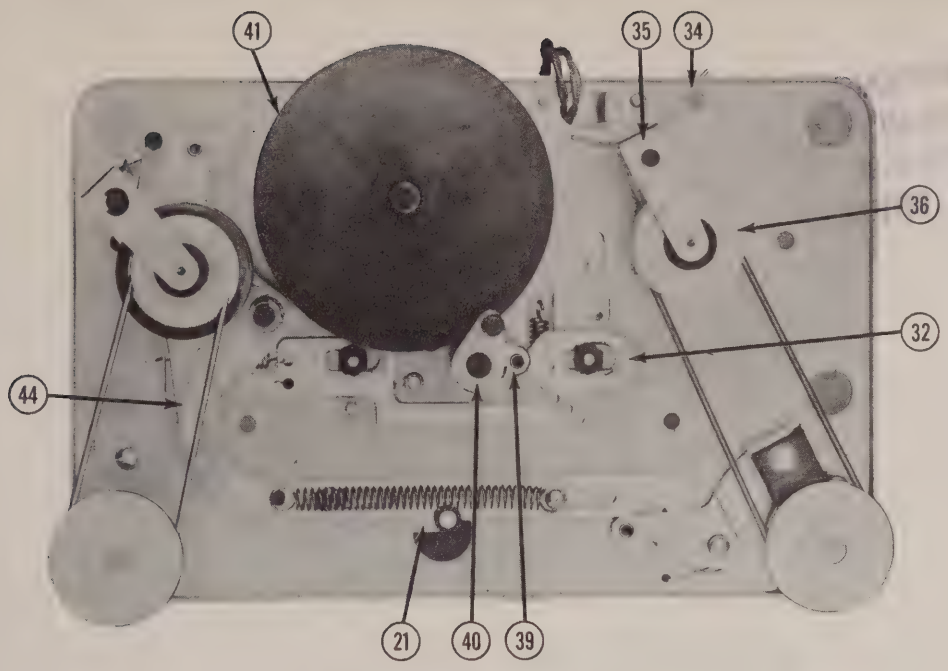


Figure 3

position This engages the drive mechanism and begins the recording.

17 To stop the recording, turn the control knob (1) to the "Off" position.

Two Track Recording -

The Tape Master is designed for two track operation; therefore, when the full reel has been recorded, the two reels can be interchanged, without rewinding, and a recording made on the other half of the tape.

To Rewind -

To rewind the tape, turn the control knob (1) to the "Rewind" position. Rewind time for a full reel of tape, (7" reel) is less than two minutes. No re-threading is required.

To Play a Recording -

1. Place slide switch in "Tape" position.

2. Place "Play Record" switch in "Play" position.

CAUTION: If recorded tape is on the recorder and the "Play Record" switch is in the "Record" position, the program will be erased when the mechanism is put in its "Forward" position

3. Turn the "Volume" control knob clockwise, so that pilot lamp lights.

4. Turn control knob (1) to "Forward" position.

5. Adjust "Volume" control for desired listening level.

Fast Forward -

During "Play Back", any portion of the recording may be skipped, or any recording on the tape may be located in a few seconds by pivoting the "Fast Forward" knob in a clockwise direction. A few seconds of "Fast Forward" is equivalent to several minutes of playing time. The "Fast Forward" knob has three positions:

(a) Normal, at which position it must remain at all times, except for "Fast Forward".

(b) Pause is the mid-position that brakes the fast moving reels and stops all tape movement.

(c) Skip is the "Fast Forward" position.

Phono-Radio Input -

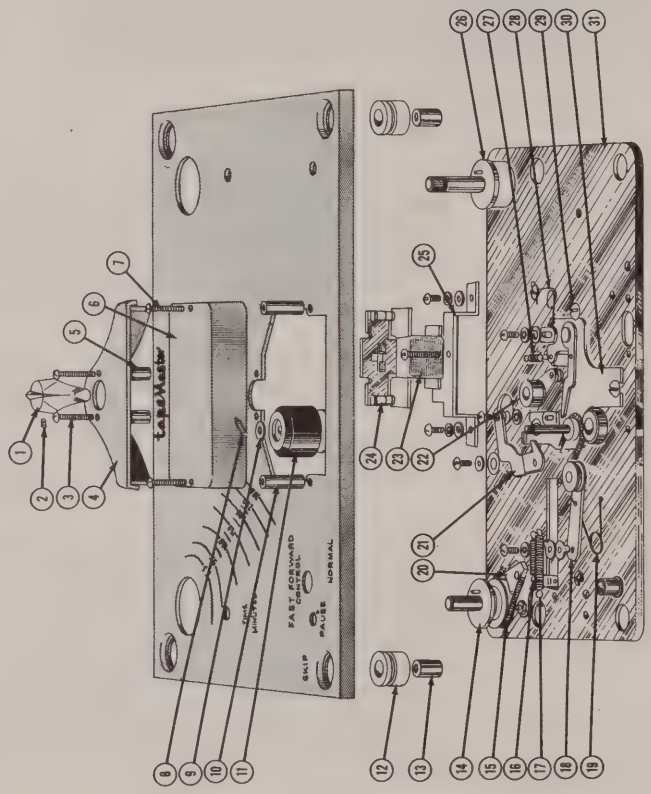
The Phono-Radio input can be used with a radio tuner or phonograph. For use with a low level magnetic or reluctance cartridge a suitable pre-amplifier must be used between the cartridge and the phono input.

Microphone Input -

The "Mic." input is high impediance and should be used with either a crystal or high impediance dynamic microphone.

Phono-Radio-Tape Slide Switch -

For playing a radio or phonograph records, the slide switch on the front panel must be in the "Phono-Radio" position. To play back tape, the slide switch must be in the "Tape" position. The purpose of the slide switch is to allow "straight thru" operation for radio tuner and phonograph input. When this switch is in the "Phono-Radio position the input is connected directly to the output cable. This makes possible playing music without having to disconnect the tape amplifier. While any such music is being played, it can be recorded on the tape by turning on the tape recorder power and setting the recording level.


FAST FORWARD CONTROL
SKIP
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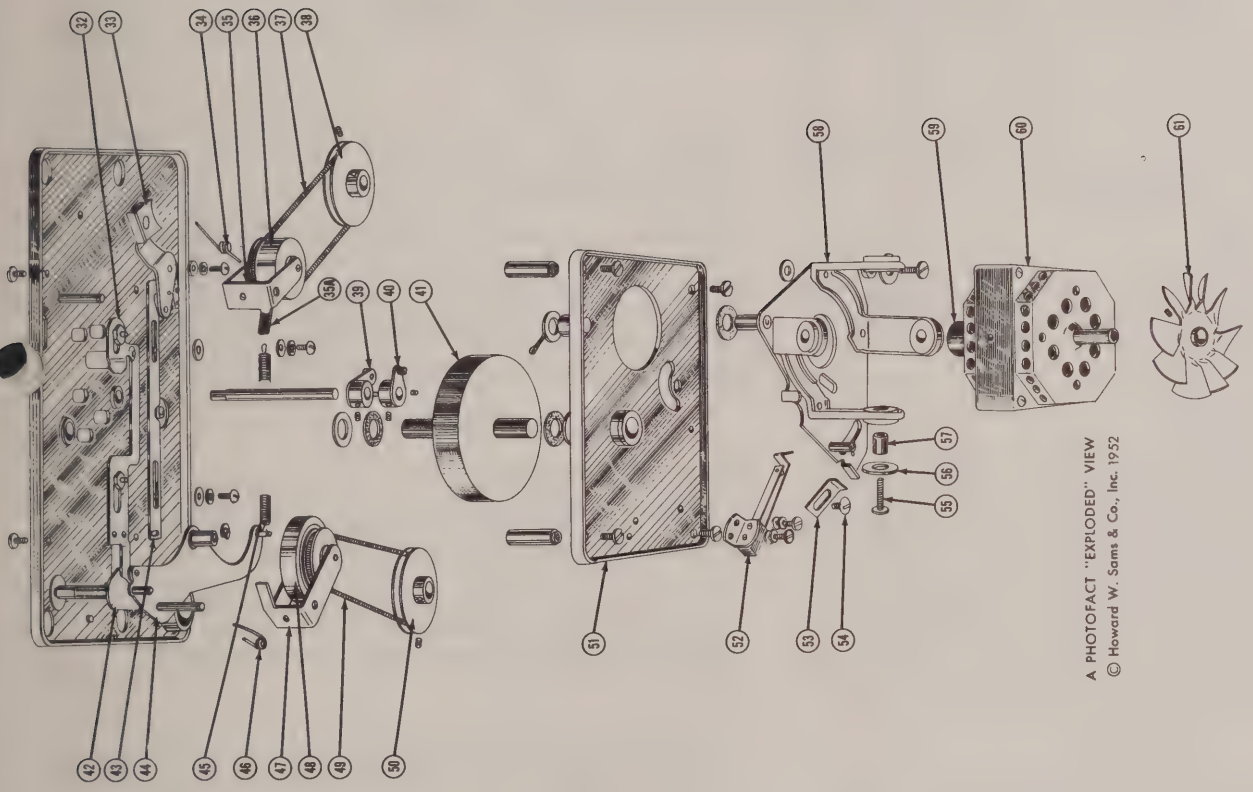
3924 MEADE ST.
DENVER, COLORADO



A PHOTOFACT "EXPLODED" VIEW
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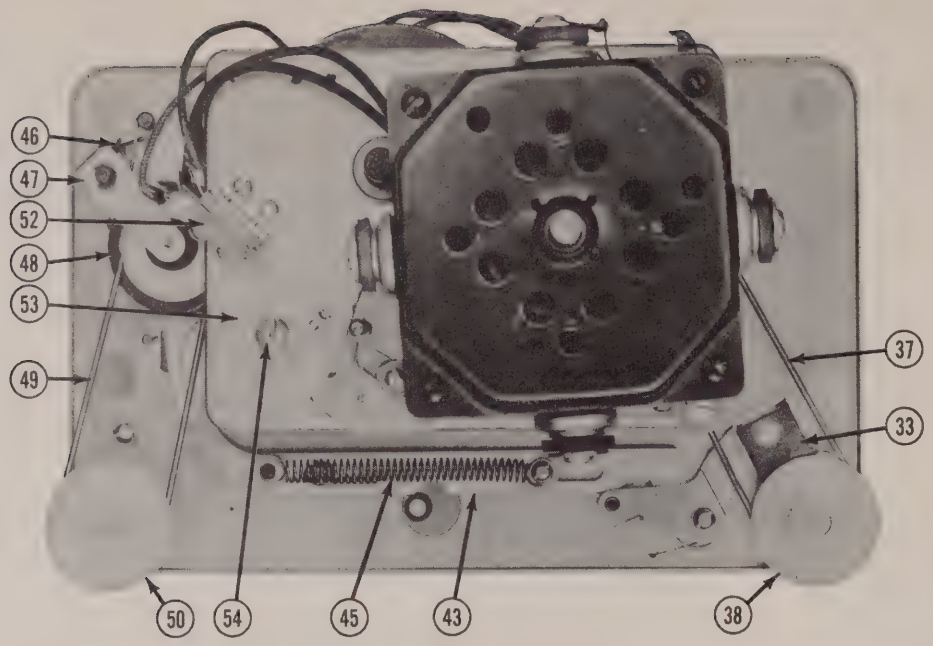


Figure 4

ADJUSTMENTS

Motor Power Switch -

The Motor Power Switch (52) is set with the motor in the "Off" position so that the contacts are opened by the brazing action of the switch blade against the bakelite pin in the motor swing plate.

The Forward Stop Lug -

The Forward Stop Lug (53), should be set so that the motor mounting assembly (58) comes to a rest position against it, as soon as the drive roller (59) makes firm contact with the flywheel (41). Excessive pressure against the flywheel will prevent the motor from starting when the control knob (1) is placed in the "Forward" position. Insufficient pressure will result in slippage and "Wow". The best setting is to adjust the Forward Stop Lug (52) 1/16" from the edge of the swing plate (58) at the point when the drive roller (59) begins to touch the flywheel.

There is no motor plate stop adjustment in the "Rewind" position; however, the rewind drive pulley (36) is located in hanger (35) whose position is adjusted by bending stop lug (35A) against the swing plate bushing in a manner that will allow a clearance between the drive roller (59) and the rewind pulley (36) in the "Off" position. This will, also, allow the drive roller (59) to engage the drive pulley (36) in the "Rewind" position. In this position, the rewind drive pulley hanger lug (35A) is moved away from the stop. The rewind drive pulley (36) is firmly held against the motor drive pulley (59) by the torsion spring (34) that needs no adjustment.

Detent Lever -

The roller of the detent lever (39) should be adjusted so that it will engage the detent, on the right end of the detent slide (32), when the control knob (1) is in the "Off" position.

Motor Transfer Lever -

The Motor Transfer Lever (40) should be adjusted when the control knob (1) is in the "Off" position. To adjust the transfer lever (40), loosen its set screws and move the motor plate (58) until the motor drive roller (59) is midway between the rewind drive pulley (36) and the flywheel (41), then tighten the screws.

TROUBLES

Irregular Speed "Wow" -

1. Oil or grease on drive roller (59), flywheel assembly (41) or pressure roller (11).

2. Drive roller (59) or pressure roller (11) eccentric. Allow mechanism to run for twenty minutes. If after this time the rollers are still eccentric, replace with new rollers.

3. Motor Shaft Binding. Motor shaft should turn freely when the control knob is in the "Off" position. If necessary, re-align bearings by tapping motor lightly with a wooden mallet.

4. Detent spring (17) not properly connected. If spring (26) is not connected, the detent slide (32) will not be held against the detent lever (39) resulting in the motor drive roller (59) not being held in firm contact with the capstan.

Motor Runs But Mechanism Will Not Operate -

1. Motor transfer lever (40) not adjusted properly. See adjustment on "Motor Transfer Lever" and the "Forward Stop Lug".

2. Drive roller (59) defective.

3. Fast forward control knob in "Pause" position. Turn to "Normal".

Mechanism Runs Forward But Will Not Rewind -

1. Check drive belt (37) for being loose or broken. Replace.

2. Motor transfer lever (40) not adjusted properly. See adjustment on "Motor Transfer Lever".

Mechanism Rewinds But Will Not Run Forward -

1. Forward stop lug (53) out of adjustment. See adjustment on "Forward Stop Lug".

Control Knob and Shaft Turn, But Mechanism Fails to Run in Either Direction -

1. Motor transfer lever (40) loose on shaft. See adjustment on "Motor Transfer Lever".

Mechanism Fails to Run in Fast Forward -

1. Check drive belt (49) to see if loose or broken. Replace.

2. Control knob (1) not in "Forward" position. This knob must be in the "Forward" position before power is supplied to the motor and, also, for the drive roller (59) to engage the capstan which, in turn, drives the fast forward pulley (48).

Slow Speed -

1. Low operating temperature.

2. Check for oil or grease on driving surfaces.

LUBRICATION

All moving parts of this recorder are in either sealed ball bearings, or self lubricated oilite bearings, therefore, no lubrication is required. Any excess oil seeps to the outer edges of the moving parts causing slippage in the drive mechanism. should this occur, wipe off all parts thus affected, with a clean, soft cloth.

CLEANING

The recording head (23), tape guide assembly (24), pressure roller (11) and capstan are subject to an accumulation of tape coating residue, which is worn off the tape as it passes these parts. To remove this accumulation, proceed as follows:

Remove the two screws that hold the front plate (6) in place. Keep control lever in "Off" position. Use a small brush or soft cloth dipped in carbon tetrachloride to clean the recording head laminations and the felt pressure pads.

Next, turn on the power and set the control lever in the "Forward" position. With a soft cloth dipped in carbon tetrachloride, wipe off all foreign matter from the capstan and the pressure roller, while they are revolving.

NEON LAMP CALIBRATION

When tubes are replaced, it may be necessary to reset the neon lamp calibration. The control shaft for this adjustment is located on the rear of the pre-amplifier chassis. If recordings are made and the neon lamp flashes only on volume peaks, and on playback, the volume level is either too low, or quite high and distorted, it indicates either defective parts, or improper setting of the neon lamp control. To reset the neon lamp control, proceed as follows.

Provide music input from radio or phonograph. With the switch in record position, connect crystal or high impedance magnetic headphones into the monitor jack and set the volume control so that the music is loud, but not distorted. If the lamp is now lit all the time, or does not flash at all, it needs adjustment. Reset the control shaft on the rear of the pre-amplifier chassis until the lamp flashes only on volume peaks. Recordings made at this setting will be neither low volume or distorted.

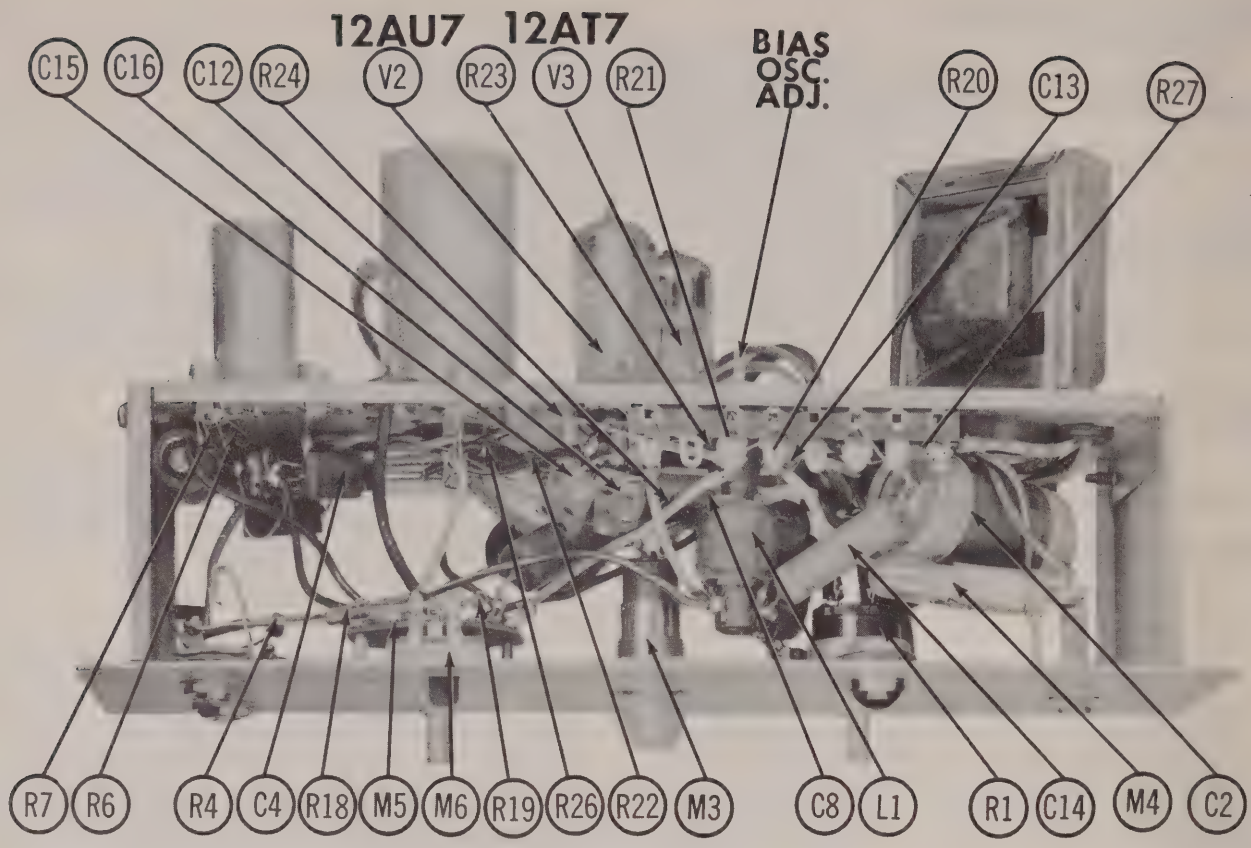


Figure 5

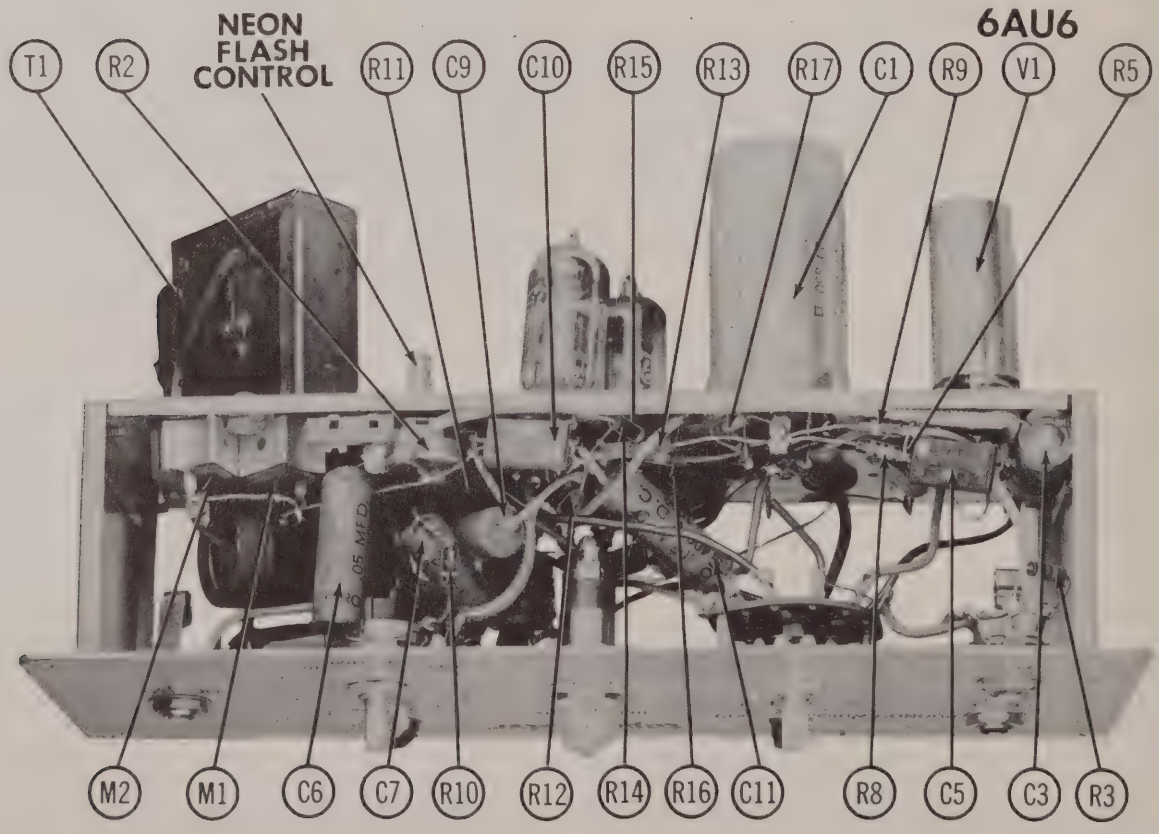
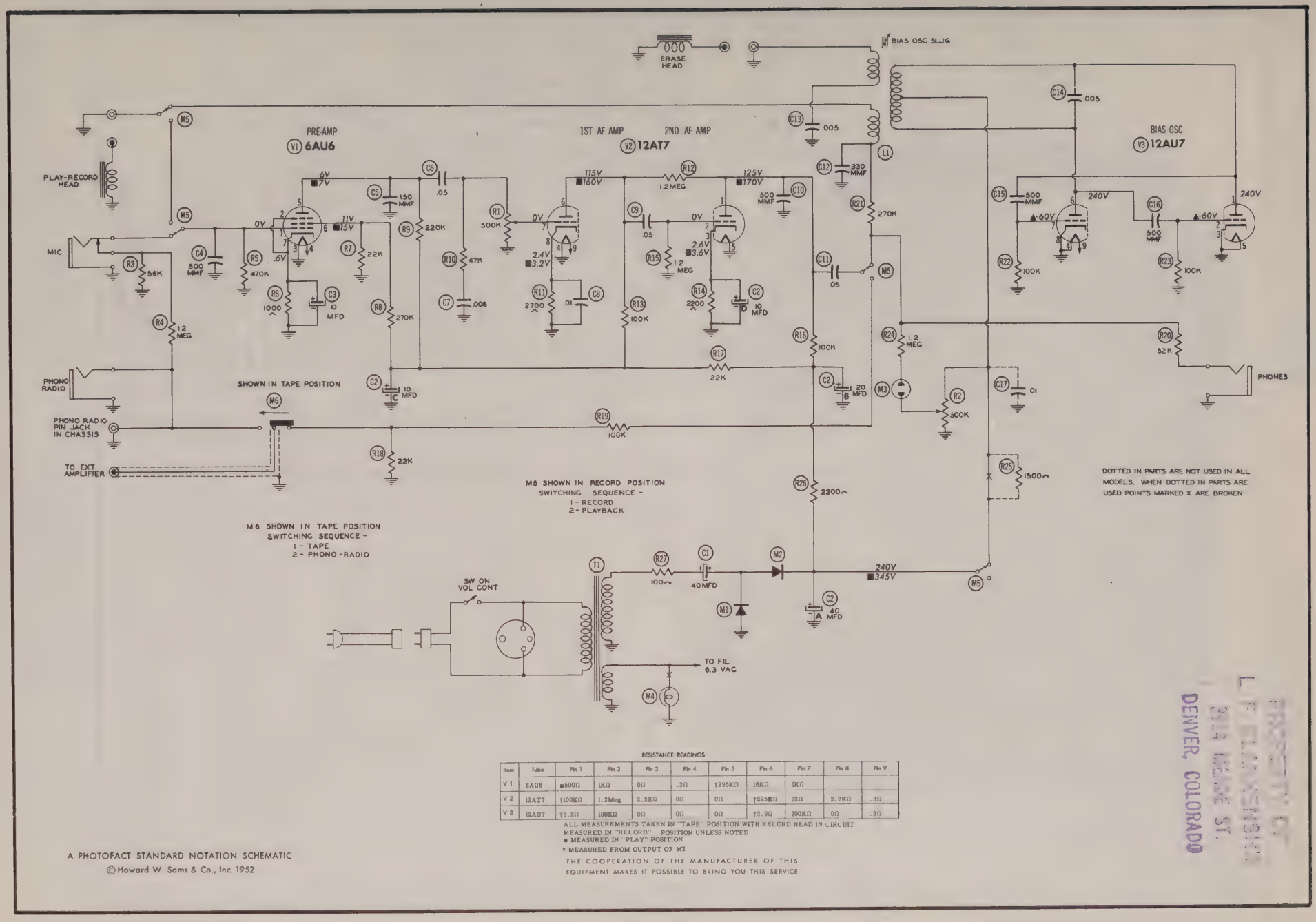


Figure 6



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AU6	■500Ω	1KΩ	0Ω	.3Ω	†295KΩ	16KΩ	1KΩ		
V 2	12AT7	†100KΩ	1.2Meg	2.2KΩ	0Ω	0Ω	†225KΩ	1Ω	2.7KΩ	.3Ω
V 3	12AU7	†5.3Ω	100KΩ	0Ω	0Ω	0Ω	†3.9Ω	100KΩ	0Ω	.3Ω

ALL MEASUREMENTS TAKEN IN "TAPE" POSITION WITH RECORD HEAD IN CIRCUIT
MEASURED IN "RECORD" POSITION UNLESS NOTED
■ MEASURED IN "PLAY" POSITION
† MEASURED FROM OUTPUT OF M2

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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TAPE MASTER
MODEL PT-121

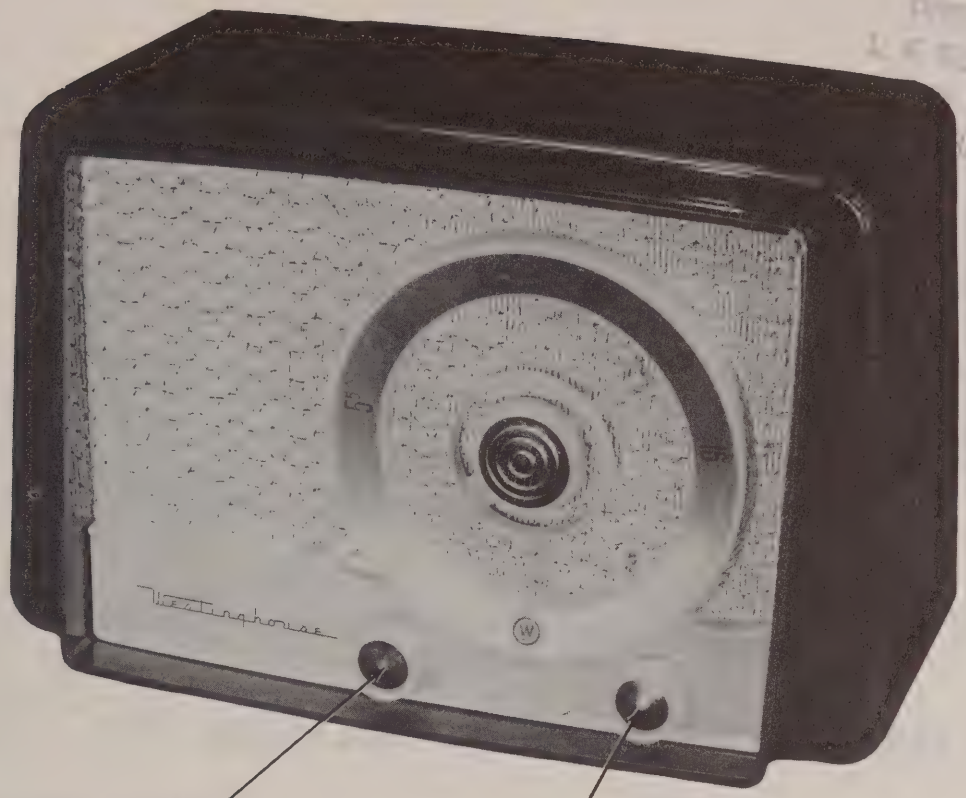
MECHANICAL PARTS LIST

Ref. No.	Description
1	Control Knob
2	Set Screw for Control Knob
3	Rear Plate Mounting Screw
4	Rear Plate
5	Plate Spacer
6	Front Plate
7	Front Plate Mounting Screw
8	Hairpin Clip
9	Flat Washer
10	Plate Spacer
11	Pressure Roller
12	Rubber Grommet
13	Spacer
14	Take-up Shaft Assembly
15	Take-up Drive Belt
16	Brake Spring
17	Detent Spring
18	Tension Idler Pulley Assembly
19	Tension Spring for Item 18
20	Take-up Brake Assembly
21	Pressure Release Lever for Fast Forward
22	Head and Pressure Roller Lever
23	Recording Head
24	Tape Guide Assembly
25	Head Mounting Bracket
26	Rewind or Supply Shaft Assembly
27	Pressure Arm Spring
28	Roller Plate Return Spring
29	Roller Plate Guide Screw and Bushing
30	Roller Plate
31	Sub Mounting Plate
32	Detent Slide
33	Supply Reel Brake Assembly
34	Tension Spring for Item 35
35	Rewind Pulley Hanger
36	Rewind Drive Pulley Assembly
37	Rewind Drive Belt
38	Rewind Pulley
39	Detent Lever Assembly
40	Motor Transfer Lever Assembly
41	Flywheel Assembly
42	Fast Forward Control Cam and Shaft
43	Brake and Head Pressure Release Lever
44	Fast Forward Pivot Lever Assembly
45	Tension Spring
46	Tension Spring for Item 47
47	Fast Forward Drive Pulley Assembly Hanger
48	Fast Forward Drive Pulley Assembly
49	Fast Forward Drive Belt
50	Fast Forward Drive Pulley
51	Mounting Plate
52	Motor Switch
53	Motor Stop Lug
54	Stop Lug Adjustment Screw
55	Motor Mounting Screw
56	Flat Washer
57	Spacer
58	Motor Swing Plate Assembly
59	Motor Drive Roller
60	Motor
61	Motor Fan

ELECTRICAL PARTS LIST

Ref. No.	Description
V1	6AU6, Pre-Amplifier
V2	12AT7, 1st and 2nd AF Amplifier
V3	12AU7, Bias Oscillator
C1	Voltage Doubler, 40 mfd. at 250 V
C2A	Filter, 40 mfd. at 350 V
C2B	Filter, 20 mfd. at 350 V
C2C	Decoupling, 10 mfd. at 350 V
C2D	AF Amplifier Cathode, 10 mfd. at 25 V
C3	Pre-Amplifier Cathode, 10 mfd. at 25 V
C4	Pre-Amplifier Grid Filter, 500 mmf. at 500 V
C5	Pre-Amplifier Plate Bypass, 150 mmf. at 500 V
C6	Audio Coupling, .05 mfd. at 400 V
C7	Tone Compensation, .008 mfd. at 600 V
C8	1st AF Amplifier Cathode, .01 mfd. at 400 V
C9	Audio Coupling, .05 mfd. at 400 V
C10	2nd AF Amplifier Plate Bypass, 500 mmf. at 500 V
C11	Audio Coupling, .05 mfd. at 400 V
C12	Tone Compensation, 330 mmf. at 500 V
C13	Tone Compensation, .005 mfd. at 600 V
C14	Fixed Trimmer, .005 mfd. at 600 V
C15	Bias Oscillator Feedback, 500 mmf. at 500 V
C16	Bias Oscillator Feedback, 500 mmf. at 500 V
C17	Level Indicator Filter, .01 mfd. at 400 V
R1	Volume Control, 500 K Ω, 1/2 W
R2	Neon Flash Control, 500 K Ω, 1/2 W
R3	Microphone Shunt, 56 K Ω, 1/2 W
R4	Tone Compensation, 1.2 meg., 1/2 W
R5	Pre-Amplifier Grid, 470 K Ω, 1/2 W
R6	Pre-Amplifier Cathode, 1000 Ω, 1/2 W
R7	Voltage Divider, 22 K Ω, 1/2 W
R8	Pre-Amplifier Screen, 270 K Ω, 1/2 W
R9	Pre-Amplifier Plate, 220 K Ω, 1/2 W
R10	Tone Compensation, 47 K Ω, 1/2 W
R11	1st AF Amplifier Cathode, 2700 Ω, 1/2 W
R12	Voltage Divider, 1.2 meg., 1/2 W
R13	1st AF Amplifier Plate 100 K Ω, 1/2 W
R14	2nd AF Amplifier Cathode, 2200 Ω, 1/2 W
R15	2nd AF Amplifier Grid, 1.2 meg., 1/2 W
R16	2nd AF Amplifier Plate, 100 K Ω, 1/2 W
R17	Decoupling, 22 K Ω, 1/2 W
R18	Voltage Divider, 22 K Ω, 1/2 W
R19	Voltage Divider, 100 K Ω, 1/2 W
R20	Tone Compensation, 82 K Ω, 1/2 W
R21	Tone Compensation, 270 K Ω, 1/2 W
R22	Bias Oscillator Grid, 100 K Ω, 1/2 W
R23	Bias Oscillator Grid, 100 K Ω, 1/2 W
R24	Level Indicator Network, 1.2 meg., 1/2 W
R25	Tone Compensation, 1500 Ω, 1/2 W
R26	Filter, 2200 Ω, 1/2 W
R27	Parasitic Suppressor, 100 Ω, 1/2 W
T1	Power Transformer
L1	Bias Oscillator Coil
M1	Selenium Rectifier, 35 MA
M2	Selenium Rectifier, 35 MA
M3	Neon Bulb, NE-51
M4	Pilot Light
M5	Switch (Play-Record)
M6	Switch (Phono-Radio-Tape)

WESTINGHOUSE
MODEL H-361T6 (Ch. V-2181-1)



WESTINGHOUSE
MODEL H-361T6 (Ch. V-2181-1)

TRADE NAME	Westinghouse Model H-361T6 (Ch. V-2181-1)
MANUFACTURER	Westinghouse Elect. Corp., TV-Radio Div., Sunbury, Pa.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES (Six)	Types 12BA6 RF Amp., 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp., 35C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC RATING .26 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1615 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	200MMF	High side to pin 7 (grid) of 12BE6 (V2) Low side to B-.	455 KC (400~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2 A3, A4	Adjust in order given for maximum output.
2.	"	High side to stator plates of rear section of tuning gang.	1615 KC	"	"	A5	Adjust for maximum output.
3.	"	"	1400 KC	1400 KC	"	A6	"
4.		Loop	"	"	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

Turn tuning gang fully closed and set pointer at low frequency end of dial, parallel to base of cabinet.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	12BA6	12BA6	7BK	
V2	Converter	12BE6	12BE6	7CH	
V3	IF Amplifier	12BA6	12BA6	7BK	
V4	Det-AVC-AF Amp	12AV6	12AV6	7BT	
V5	Audio Output	35C5	35C5	7CV	
V6	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	■50	150	V-10190	AFH2-16		UP5515		FP214	TVL-2435	
B	▲50	150								
C2	.05	200	RCP10W2503M	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C3	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C4A	220									
B	.002									
C	.005				♦PC-150		♦1408-01		♦103C4	
D	250									
E										
C5	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C6	.047	400	V-10157-4473M	489ZGXY-05		PJ4S47		PT4147	4TM-S47	
C7	.05	400	RCP10W4503K	P488-05		PTE4S5		PT415	4TM-S5	

♦ Items C4A, C4B, C4C, C4D, C4E, R8A, R8B, R8C are combined in one unit.
When replacing items separately C4D and C4E should total 250MMF

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Westinghouse PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	V-9993-4	Q19-133X	AK-82	BTSK-67-S	UT-430	Volume-Tap ⓐ 180KΩ
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Westinghouse PART No.	IRC PART No.	NOTES
R2	330Ω	½	RC20AE331K	BTS-330	
R3	10KΩ	½	RC20AE103M	BTS-10K	
R4	22KΩ	½	RC20AE223M	BTS-22K	
R5	3.3Meg	½	RC20AE335M	BTS-3.3Meg	
R6	68Ω	½	RC20AE680M		
R7	22KΩ	½	RC20AE223M	BTS-22K	

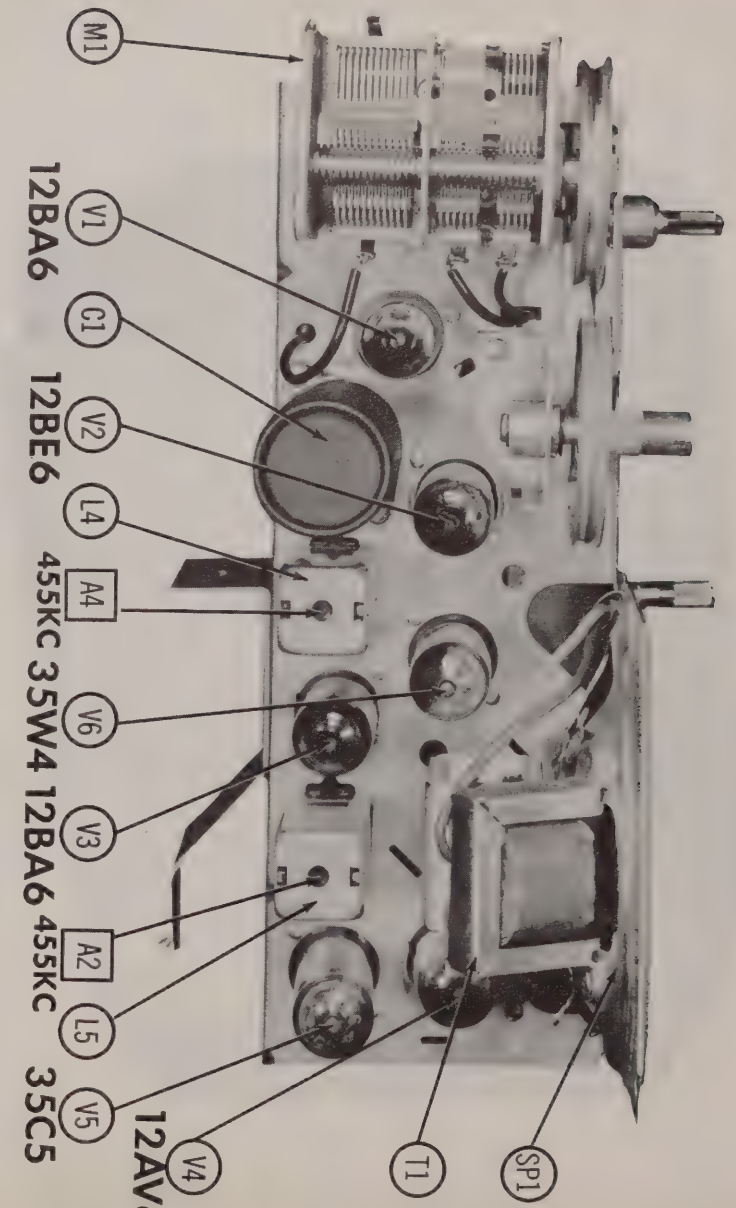
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Westinghouse PART No.	IRC PART No.	NOTES
R8A	6.8Meg	½	♦	BTS-6.8Meg	
B	470KΩ	½		BTS-470K	
C	470KΩ	½		BTS-470K	
R9	150Ω	½	RC20AE151M	BTS-150	
R10	1000Ω	1	RC30AE102M	BTA-1000	
R11	22Ω	1	RC30AE220M		
R12	47KΩ	½	RC20AE473M	BTS-47K	Note

♦ Items R8A, R8B, R8C, C4A, C4B, C4C, C4D, C4E are combined in one unit.
Note: Not used in all models.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: Westinghouse PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	2.2KΩ tap ⓐ 13Ω	4.1Ω	172Ω tap ⓐ 8Ω	.8Ω	Part of spkr.	A-3330 ①	A-3031	RO-3 ①		① Drill one new mtg. hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

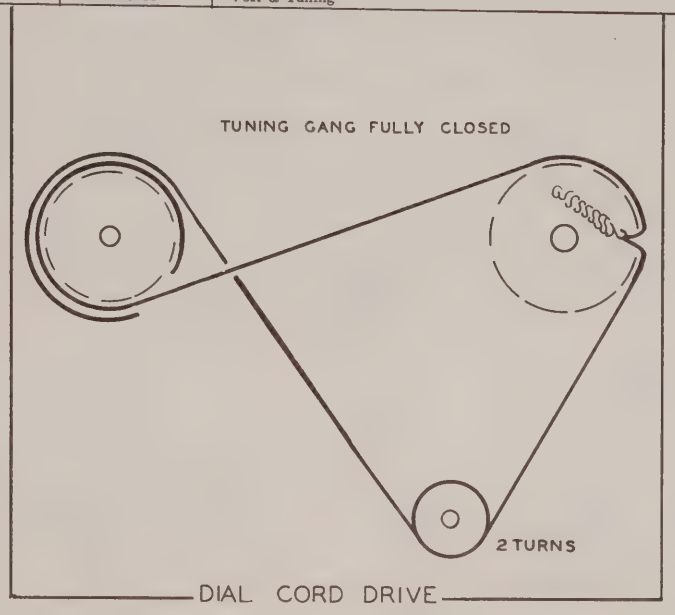
ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Westinghouse PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	4.1Ω	V-10079-2	ST-113 Mod. P4-X	4A07	

COILS (RF-IF)

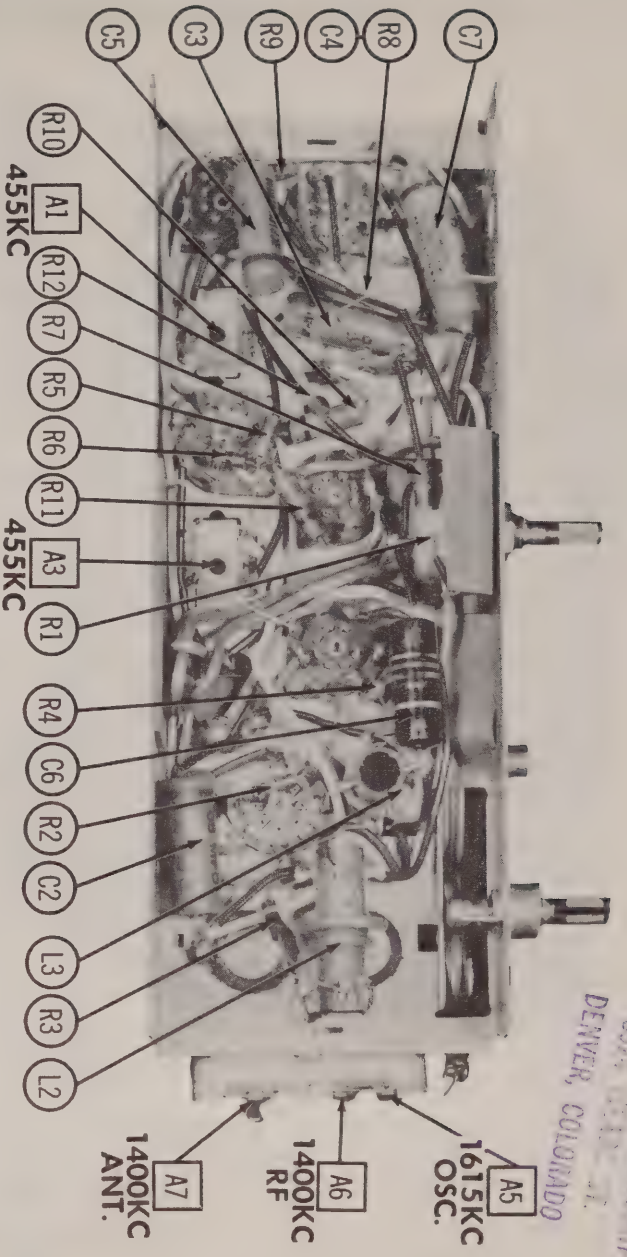
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	Westinghouse PART No.	MERIT PART No.	
L1	Loop Ant.	3.7Ω		V-10197-1		
L2	RF Coil	3.2Ω	11Ω	V-10891		Secondary tapped @ 5.2Ω
L3	Osc. Coil	1Ω	11Ω	V-10192		
L4	Input IF	17.5Ω	17.5Ω	V-10945-1	BC-352	
L5	Output IF	17.5Ω	17.5Ω	V-10945-1	BC-353	

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M1	3 Gang Var. Cap.	V-10876-1	(23-473MMF, 9-290MMF, 11-187MMF)
	Cabinet	V-1220-4	
	Dial	V-10335-1	
	Pointer	V-10332-5	
	Knob	V-10009-14	Vol. & Tuning

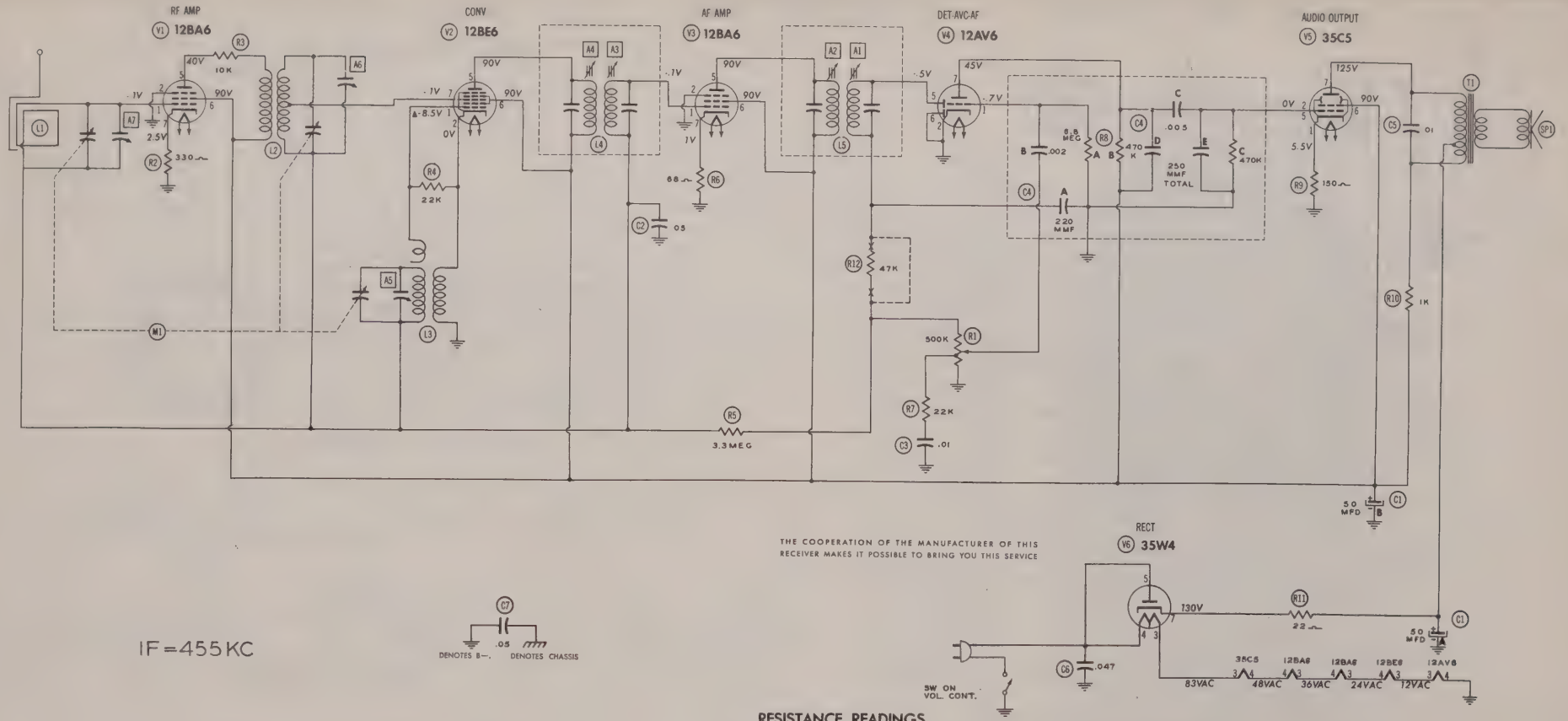


CHASSIS—BOTTOM VIEW



PROPERTY OF
L. F. BUCKINGHAM
3924 [illegible]
DENVER, COLORADO

WESTINGHOUSE
MODEL H-361T6 (Ch. V-2181-1)



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

IF=455KC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BA6	3.8Meg	0Ω	24Ω	36Ω	†11KΩ	†1KΩ	330Ω
V 2	12BE6	22KΩ	1Ω	12Ω	24Ω	†1KΩ	†1KΩ	3.8Meg
V 3	12BA6	3.8Meg	0Ω	36Ω	48Ω	†1KΩ	†1KΩ	68Ω
V 4	12AV6	6.8Meg	0Ω	12Ω	0Ω	550KΩ	0Ω	†470KΩ
V 5	35C5	150Ω	470KΩ	83Ω	48Ω	470KΩ	†1KΩ	†194Ω
V 6	35W4	†22Ω	INF	83Ω	118Ω	118Ω	100Ω	40KΩ

† MEASURED FROM PIN 7 OF V6
▲ TAKEN WITH VACUUM TUBE VOLTMETER

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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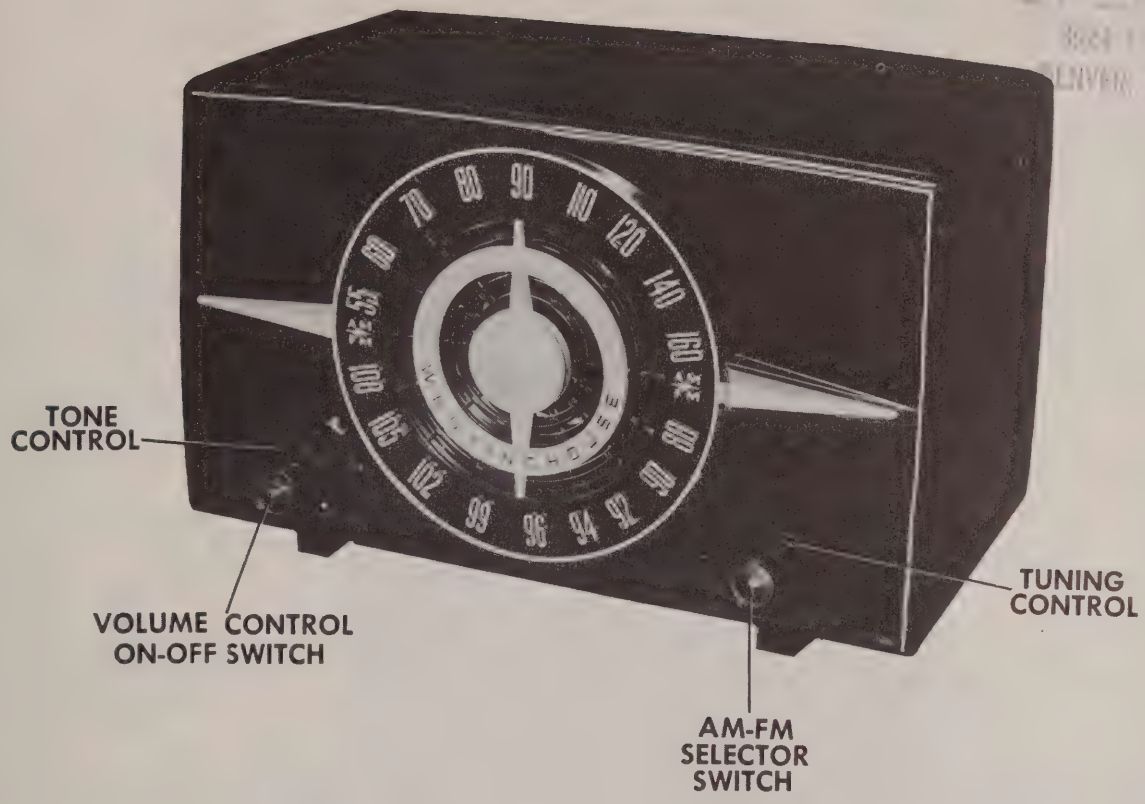
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

WESTINGHOUSE
MODELS H-370T7, H-371T7 (Ch. V-2180-8)

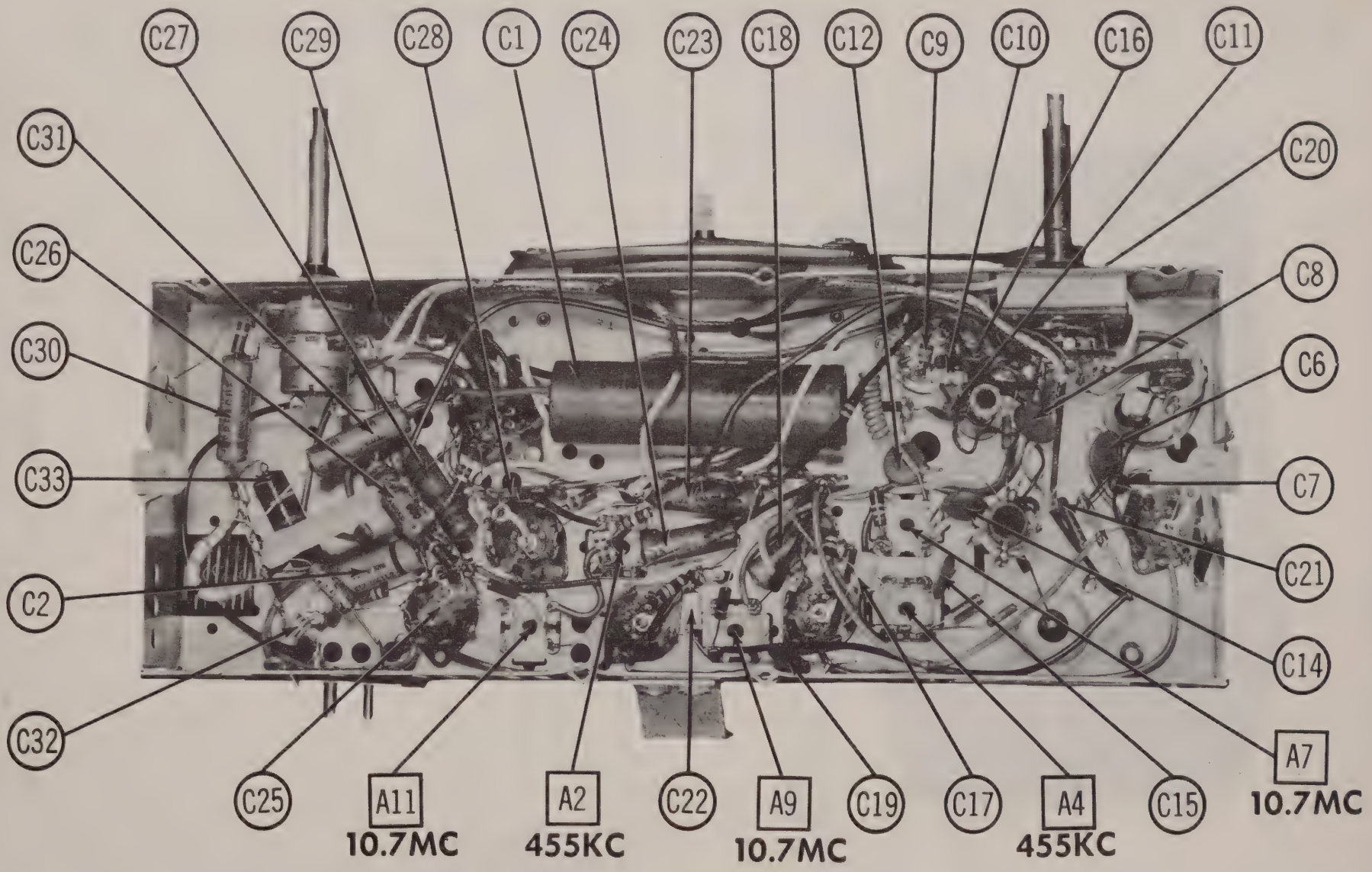


WESTINGHOUSE
MODELS H-370T7, H-371T7 (Ch. V-2180-8)

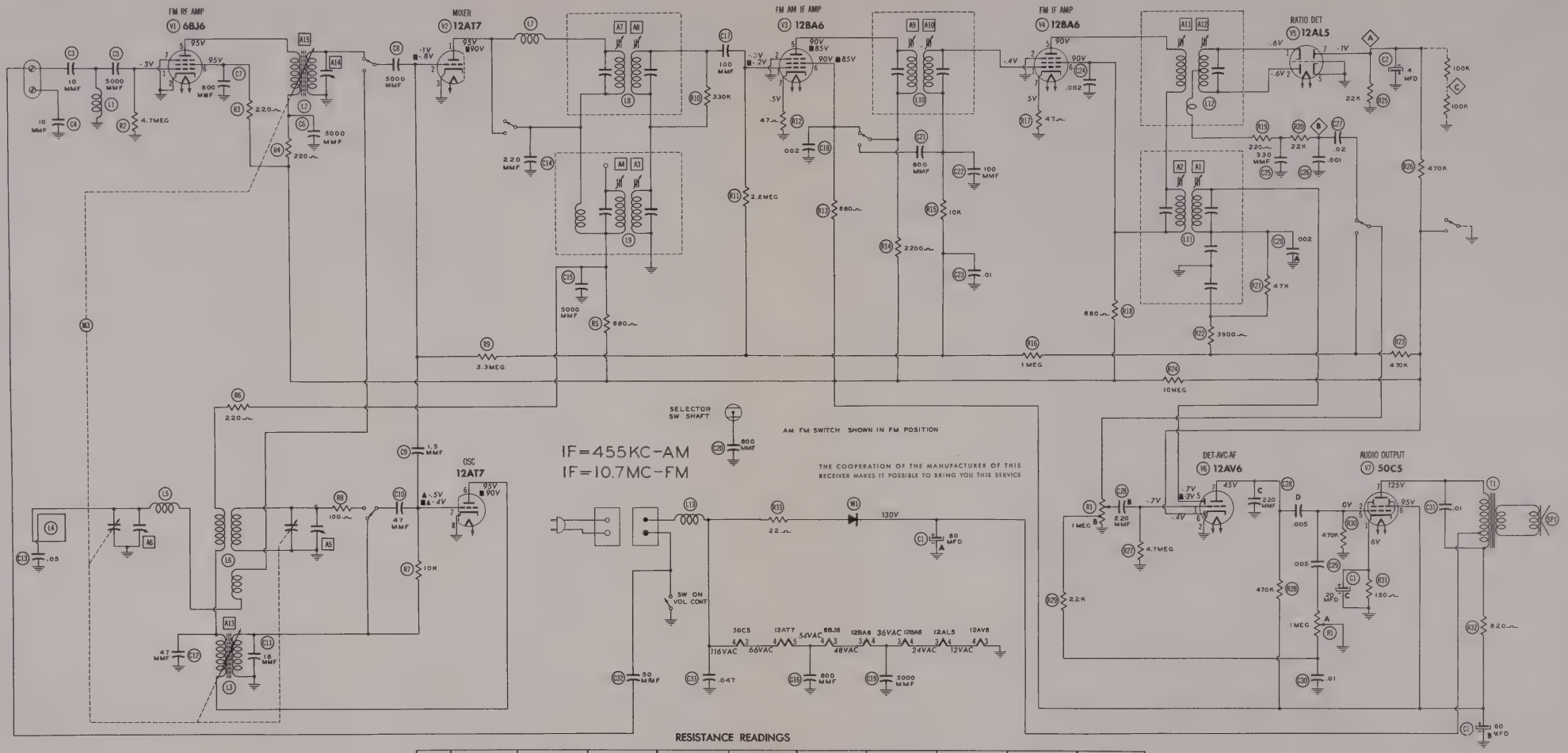
TRADE NAME	Westinghouse Models H-370T7, H-371T7 (Ch. V-2180-8)	
MANUFACTURER	Westinghouse Elect. Corp., TV-Radio Div., Sunbury, Pa.	
TYPE SET	AC-DC Operated AM-FM Superheterodyne Receiver	
TUBES (Seven)	Types 6BJ6 FM RF Amp., 12AT7 Conv., 12BA6 1st. FM-AM IF Amp., 12BA6 2nd. FM IF Amp., 12AL5 Ratio Det., 12AV6 AM Det-AVC-AF Amp., 50C5 Audio Output	
POWER SUPPLY	110-120 Volts AC/DC	RATING .33 Amp. @ 117 Volts AC
TUNING RANGE	540-1615 KC	FREQ. MOD. 88-108MC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BJ6	4.7Meg	0Ω	48Ω	54Ω	†1.2KΩ	†1.2KΩ	0Ω		
V 2	12AT6	†1.5KΩ	5.2Meg ■4.8Meg	0Ω	66Ω	54Ω	†1.7KΩ	10KΩ	0Ω	60Ω
V 3	12BA6	4.1Meg ■3.7Meg	0Ω	48Ω	36Ω	†1.3KΩ ■†3KΩ	†1.3KΩ ■†1.5KΩ	47Ω		
V 4	12BA6	1.9Meg ■1.3Meg	0Ω	36Ω	24Ω	†1.5KΩ	†1.5KΩ	47Ω		
V 5	12AL5	INF	INF	24Ω	12Ω	0Ω	0Ω	22KΩ		
V 6	12AV6	4.7Meg	0Ω	0Ω	12Ω	1Meg ■350KΩ	490KΩ ■0Ω	†470KΩ		
V 7	50C5	150Ω	470KΩ	66Ω	116Ω	470KΩ	†820Ω	†240Ω		

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS NOTED
■ MEASURED IN AM POSITION
† MEASURED FROM OUTPUT OF M1
▲ TAKEN WITH VACUUM TUBE VOLTMETER

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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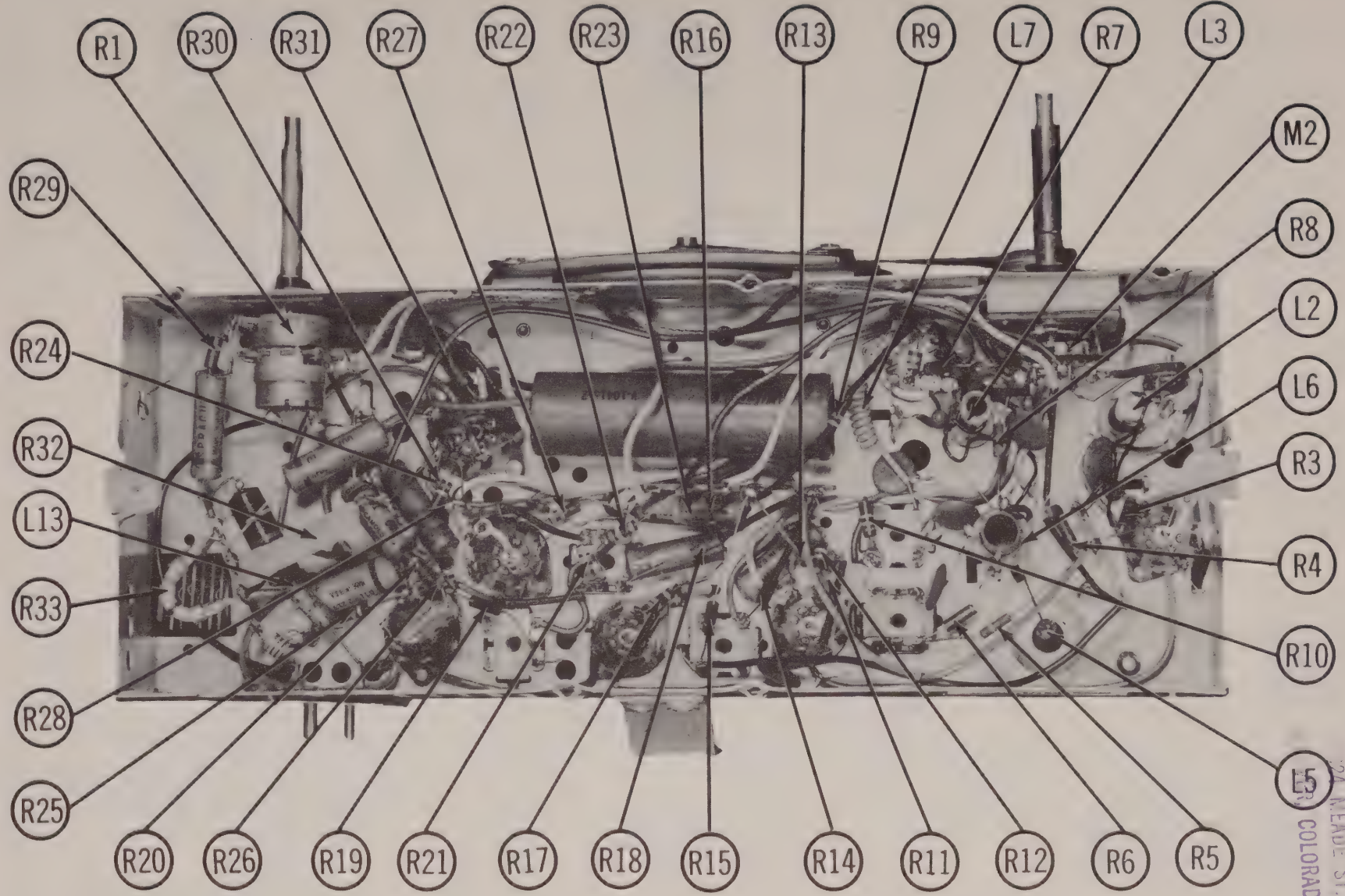


CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PROPERTY OF
: BLANKENSHIP
24 MEADE ST.
COLORADO

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

AM ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator of rear section of tuning gang. Low side to chassis.	455 KC (400∿Mod)	AM	Tuning gang fully open	Across voice coil	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to dreduce hum modulation.
2.		Loop	1615 KC	"	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400 KC	"	Tune to 1400 KC signal	"	A6	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from point (A) to chassis. The junction of these two resistors is alignment point (B) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.1MFD	High side to pin 2 (grid) of 12AT7 (V2) Low side to chassis.	10.7MC (Unmod)	FM	Tuning gang fully open.	DC probe to point (A) Common to chassis.	A7, A8, A9, A10, A11	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe to point (B) Common to point (C)	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side to the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
4.	.1MFD.	High side to pin 2 (grid) of 12AT7 (V2) Low side to chassis.	10.7MC (450KC Swp)	FM	Tuning gang fully open.	Vert. Amp to point (A) Low side to chassis.	A7, A8, A9, A10, A11.	Disconnect stabilizer capacitor C2. Adjust for curve of maximum amplitude and symmetry. as in fig. 1
5.	"	"	"	"	"	Vert. Amp to point (B) Low side to chassis.	A12	Reconnect capacitor C2. Adjust so that 10.7MC occurs at the center of the crossover lines as in fig. 2 SLIGHTLY retouch A11 for maximum straightness and amplitude of crossover lines.

FM RF ALIGNMENT

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	270Ω Carbon Resistors	High side thru 270Ω to right hand FM antenna terminal (viewed from rear of chassis). Low side to left hand terminal.	98MC (Unmod.)	FM	98MC	DC probe to point (A). Common to chassis.	A13, A14	Adjust in order given for maximum deflection.
7.	"	"	105MC	"	Tune to 105MC signal	"	A15	Adjust for maximum deflection.
8.	"	"	90MC	"	Tune to 90MC signal	"	A14	Rock tuning assembly while adjusting for maximum deflection Repeat steps 7 and 8 for optimum tracking.

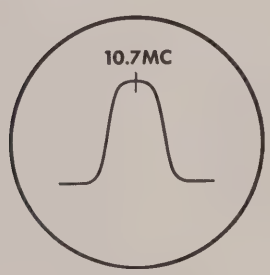


FIG. 1

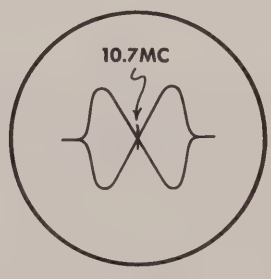


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	FM RF Amplifier	6BJ6	6BJ6	7CM	
V2	Converter	12AT7	12AT7	9A	
V3	1st. FM AM IF Amplifier	12BA6	12BA6	7BK	
V4	2nd. FM IF Amplifier	12BA6	12BA6	7BK	
V5	Ratio Detector	12AL5	12AL5	6BT	
V6	Det.-AVC-AF Amp.	12AV6	12AV6	7BT	
V7	Audio Output	50C5	50C5	7CV	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	80	150	V-10415-2	PRS150/80-40-20		EDL8415C		3N538	TVA-3438	
B	60	150				BR2015A		TC26		
C	20	150		PRS25/25						
C2	4	50	V-4637	PRS150/4		BR550		TC30	TVA-1303	
C3	10		V-5658-7	SI10	D6-100	5W5Q1	GP1K-100	UC-541	5GA-Q1	
C4	10		V-5658-7	SI10	D6-100	5W5Q1	GP1K-100	UC-541	5GA-Q1	
C5	5000		V-5596	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C6	5000		V-5596	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note 1
C7	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	Note 1
C8	5000		V-5596	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C9	1.5		V-5658-9	SI1.5NP0	TCZ-1.5		NP0K-1R5	ZT5515	5TCCB-V15	
C10	47		R2CC30RK470K				N220K-470			
C11	18						N470K-180			
C12	47		V-10710-3	SI47NP0	TCZ-47		NP0K-470	ZT54447	5TCC-Q47	
C13	.05	200	RCP10W2503M	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C14	220		V-10710-2	SI220	D6-221	5W5T25	GP2K-221	UC-5322	5GA-T22	
C15	5000		V-5596	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C16	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C17	100		R4CC21YY101M	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C18	.002	600	RCP10W6202M	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C19	5000		V-5596	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C20	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C21	800		V-9863-1	BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C22	100		R4CC21YY101M	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C23	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C24	.002	600	RCP10W6202M	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C25	330	500	RCM20AE331M	1468-00035	D6-331		GP2K-331	UC-5333	1FM-335	
C26	.001	600	RCP10W6102M	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C27	.02	200	RCP10W2203M	P488-02	DF-203	PTE4S2		PT402	2TM-S2	
C28A	220		V-9634-1	SI220	D6-221	5W5T25	GP2K-221	UC-5322	*34C3	
B	.002			P688-002	D6-202	PTE6D2	GP2-333-202	PT622		
C	220			SI220	D6-221	5W5T25	GP2K-221	UC-5322		
D	.005			P688-005	D6-502	PTE6D5	GP2-333-502	PT625		
C29	.005	400	RCP10W4502M	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C30	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C31	.01	400	RCP10W4103M	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C32	50		V-5658-10	SI50	D6-500	TM5Q5	GP1K-500	UC-545	5GA-Q5	
C33	.047	400	V-10157-4473M	489ZGXY-05		PJ4S47		PT4147	4TM-S47	

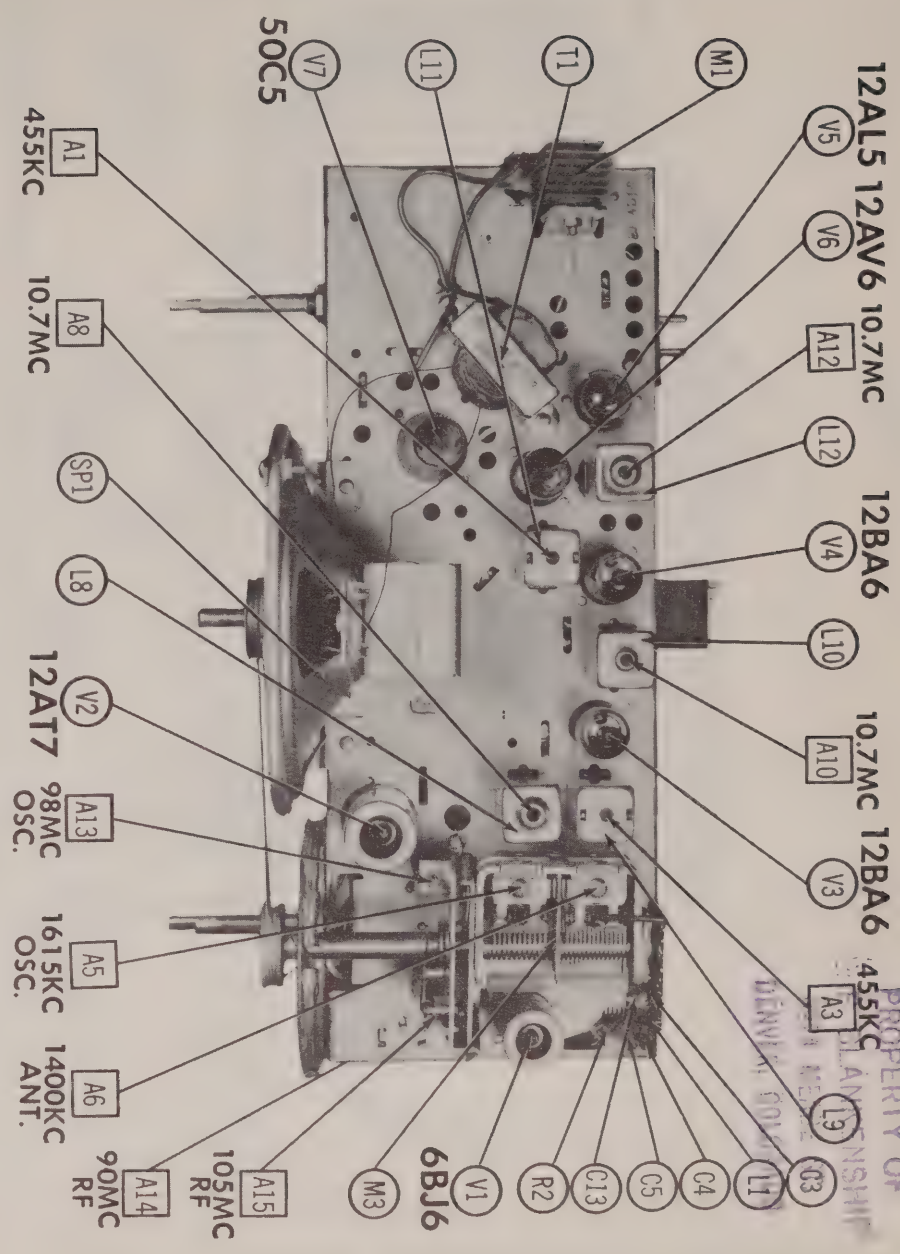
Note 1. Some Models combine C6 and C7 into a dual 5000MMF unit (Part #V-9044-1)

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	Westinghouse PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1 Meg	1/2	V-10330-2	QJ-361R*		SBBT-687-S	UF16L	Tone-Panel
B	1 Meg	1/2					UR16-T23	Volume-Tap@ 160KΩ - Rear
C	Switch						US-26	Attach to R1B

* CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS: B11-137 & P1-200 (Panel) B13-137 & R2-212 (Rear) & SWITCH 76-1.

CHASSIS—TOP VIEW



PROPERTY OF 455KC

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Westinghouse PART No.	IRC PART No.	
R2	4.7Meg		RC20AE475M	BTS-4.7Meg	
R3	220Ω		RC20AE211M	BTS-220	
R4	220Ω		RC20AE221M	BTS-220	
R5	680Ω		RC20AE681M	BTS-680	
R6	220Ω		RC20AE221M		
R7	10KΩ		RC20AE102K	BTS-10K	
R8	100Ω		RC20AE101M	BTS-100	
R9	3.3Meg		RC20AE335M	BTS-3.3Meg	
R10	330KΩ		RC20AE334M	BTS-330K	
R11	2.2Meg		RC20AE225M	BTS-2.2Meg	
R12	47Ω		RC20AE470M		
R13	680Ω		RC20AE681M	BTS-680	
R14	2200Ω		RC20AE222M	BTS-2200	
R15	10KΩ		RC20AE103K	BTS-10K	
R16	1 Meg		RC20AE105M	BTSel Meg	
R17	47Ω		RC20AE470M		

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Westinghouse PART No.	IRC PART No.	
R18	680Ω	1/2	RC20AE681M	BTS-680	
R19	220Ω	1/2	RC20AE221M	BTS-220	
R20	22KΩ	1/2	RC20AE223M	BTS-22K	
R21	47KΩ	1/2	RC20AE473M	BTS-47K	
R22	3900Ω	1/2	RC20AE392M	BTS-3900	Note
R23	470KΩ	1/2	RC20AE474M	BTS-470K	
R24	10 Meg	1/2	RC20AE106M	BTS-10 Meg	
R25	22KΩ	1/2	RC20AE223K	BTS-22K	
R26	470KΩ	1/2	RC20AE474M	BTS-470K	
R27	4.7Meg	1/2	RC20AE475M	BTS-4.7Meg	
R28	470K Ω	1/2	RC20AE474M	BTS-470K	
R29	22KΩ	1/2	RC20AE223M	BTS-22K	
R30	470KΩ	1/2	RC20AE474M	BTS-470K	
R31	140Ω	1	RC30AE151K	BTA-150	
R32	820Ω	5	V-6984-10	1 3/4A-800	
R33	22Ω	1	V-6067-7		

Note Some models use a 2200Ω resistor in this application.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		Westinghouse PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	1.9KΩ	2.9Ω	240Ω tap @ 8.5Ω	.7Ω	V-10660	A-3330	A-3031	RO-3	S-2X	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Westinghouse PART No.	JENSEN PART No.	QUAM PART No.	
SP1	5-1/4"	PM	3.2Ω	V-10030-1	ST-803 Mod. P525-V	52A1	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	Westinghouse PART No.	MERIT PART No.	IRC PART No.	
L1	RF Choke	0Ω		V-10644-1			
L2	FM RF Coil	0Ω	0Ω	V-11240-1			Less core, part #V-9676-1
L3	FM Osc. Coil	0Ω	0Ω	V-11239-1			Less core, part #V-9676-1
L4	AM Loop Ant.	2.1Ω		V-9653			
L5	RF Choke	2.2Ω		V-9099-5		CLA	2.7 Microhenries
L6	AM Osc. Coil	3.7Ω	9Ω	V-10944-1			Pick-up winding - 1.8Ω
L7	RF Choke	0Ω		V-4886-14			
L8	1st. FM IF	0Ω	1.8Ω	V-9688	FM-254		
L9	1st. AM IF	15Ω	11.5Ω	V-10619			
L10	2nd. FM IF	1.7Ω	1.7Ω	V-11264-1	FM-254		
L11	2nd. AM IF	15Ω	15Ω	V-10350-1	BC-355		
L12	Ratio Det.	2.8Ω	.3Ω CT	V-9828	FM-255		Tertiary Winding - .35Ω
L13	Fil. Choke	.85Ω		V-9099-1		CLA	1.2 Microhenries

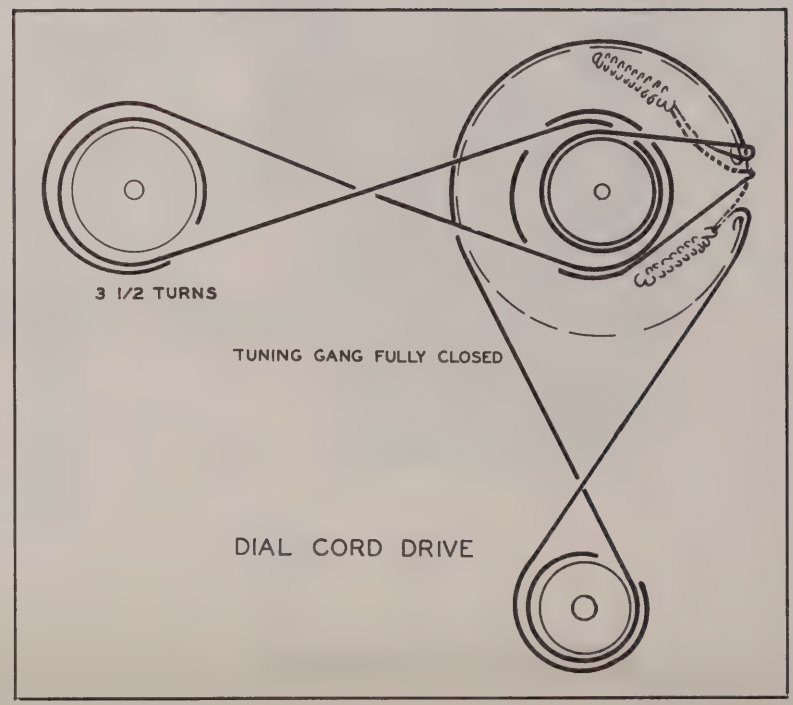
SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT	Westinghouse PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	
M1	.079A	V-9640	NC5	5M1	1101A	6S100	

PARTS LIST AND DESCRIPTIONS (Continued)

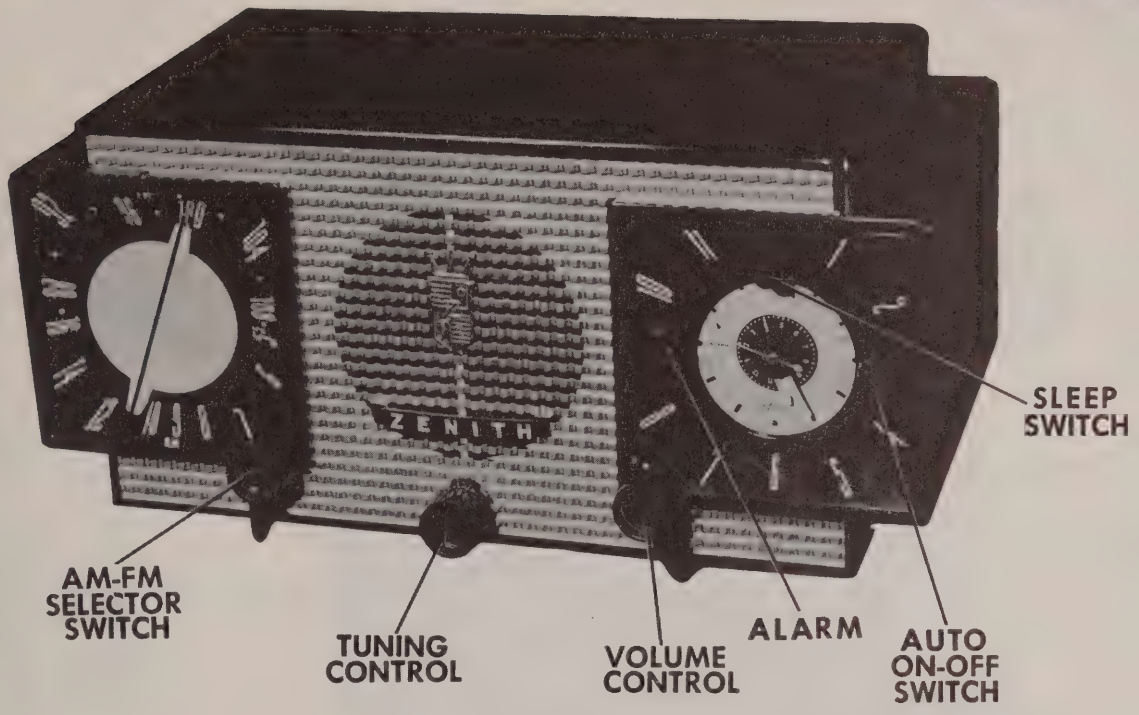
MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M2	Switch	V-10651-1	AM-FM Selector
M3	2 Gang Var. Cap	V-10662-1	(22-489MMF, 25-177MMF)
	Cabinet	V-1268-1	Black
	Cabinet	V-1268-2	Brown
	Pointer	V-11145-1	Model H-370T7
	Pointer	V-11145-2	Model H-371T7
	Knob	V-10408-7	Volume - Model H-370T7
	Knob	V-10408-9	Volume -Model H-371T7
	Knob	V-10408-6	Band - Model H-370T7
	Knob	V-10408-8	Band - Model H-371T7
	Knob	V-11149-1	Tuning (Rear) Model H-370T7
	Knob	V-11149-3	Tuning (Rear) Model H-371T7
	Knob	V-11149-2	Tone (Rear) Model H-370T7
	Knob	V-11149-4	Tone (Rear) Model H-371T7



DENVER COLORADO

ZENITH
MODELS J733, G, R, Y (Ch. 7J03)



ZENITH
MODELS J733, G, R, Y (Ch. 7J03)

TRADE NAME	Zenith Models J733, G, R, Y (Ch. 7J03)		
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago, Ill.		
TYPE SET	AC Operated AM-FM Superheterodyne Receiver With Electric Clock		
TUBES (Seven)	Types 6BJ6 FM RF Amp., 12AT7 FM AM Conv., 6BJ6 1st. FM AM IF Amp., 12BA6 2nd. FM AM IF Amp., 12AU6 FM Limiter, 19T8 (or) 19C8 FM Discr.-AM Det.-AVC-AF Amp., 35C5 Audio Output.		
POWER SUPPLY	110-120 Volts AC-60 Cycle	RATING	.31 Amp @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1620 KC	FREQ. MOD.	88-108MC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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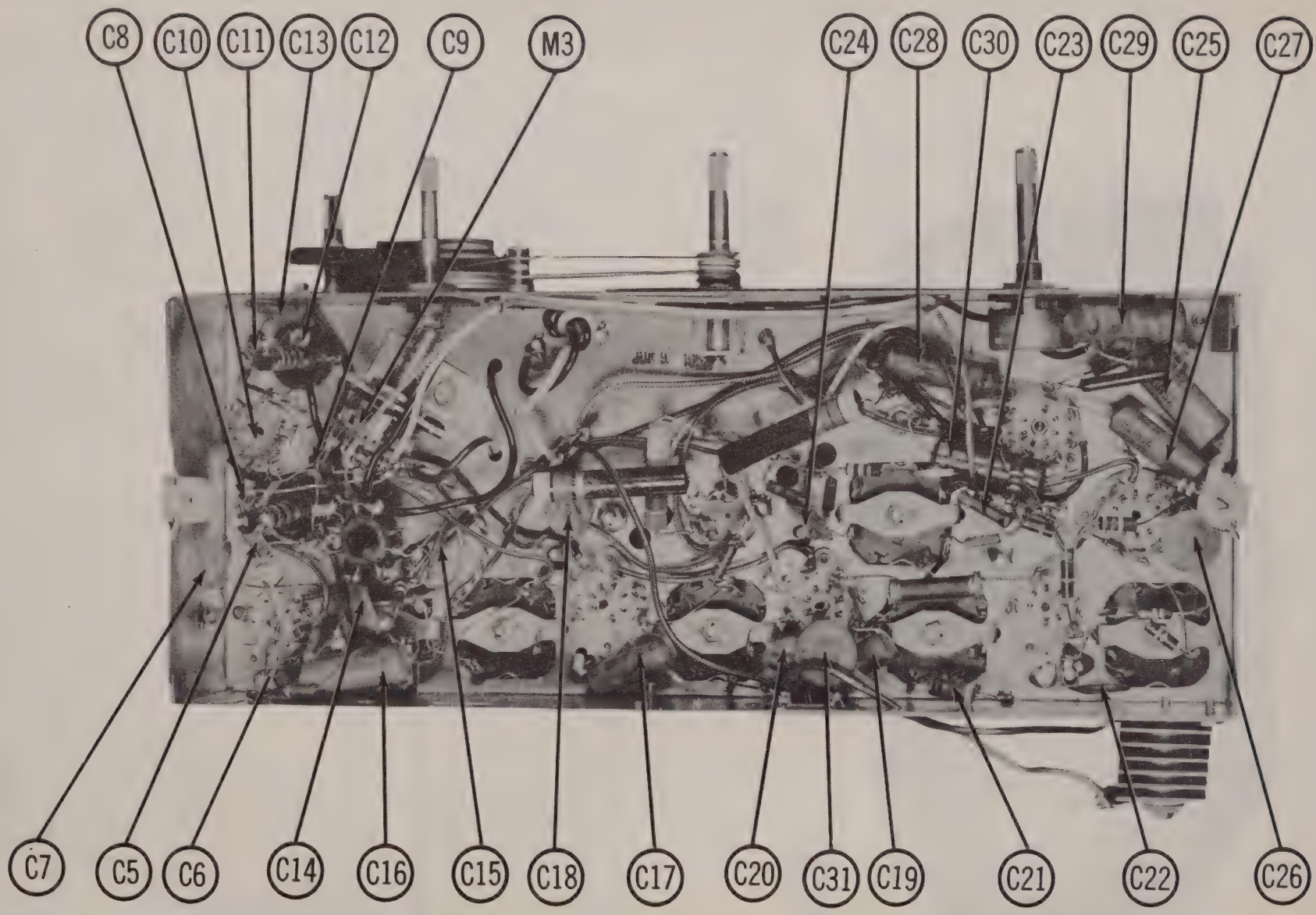
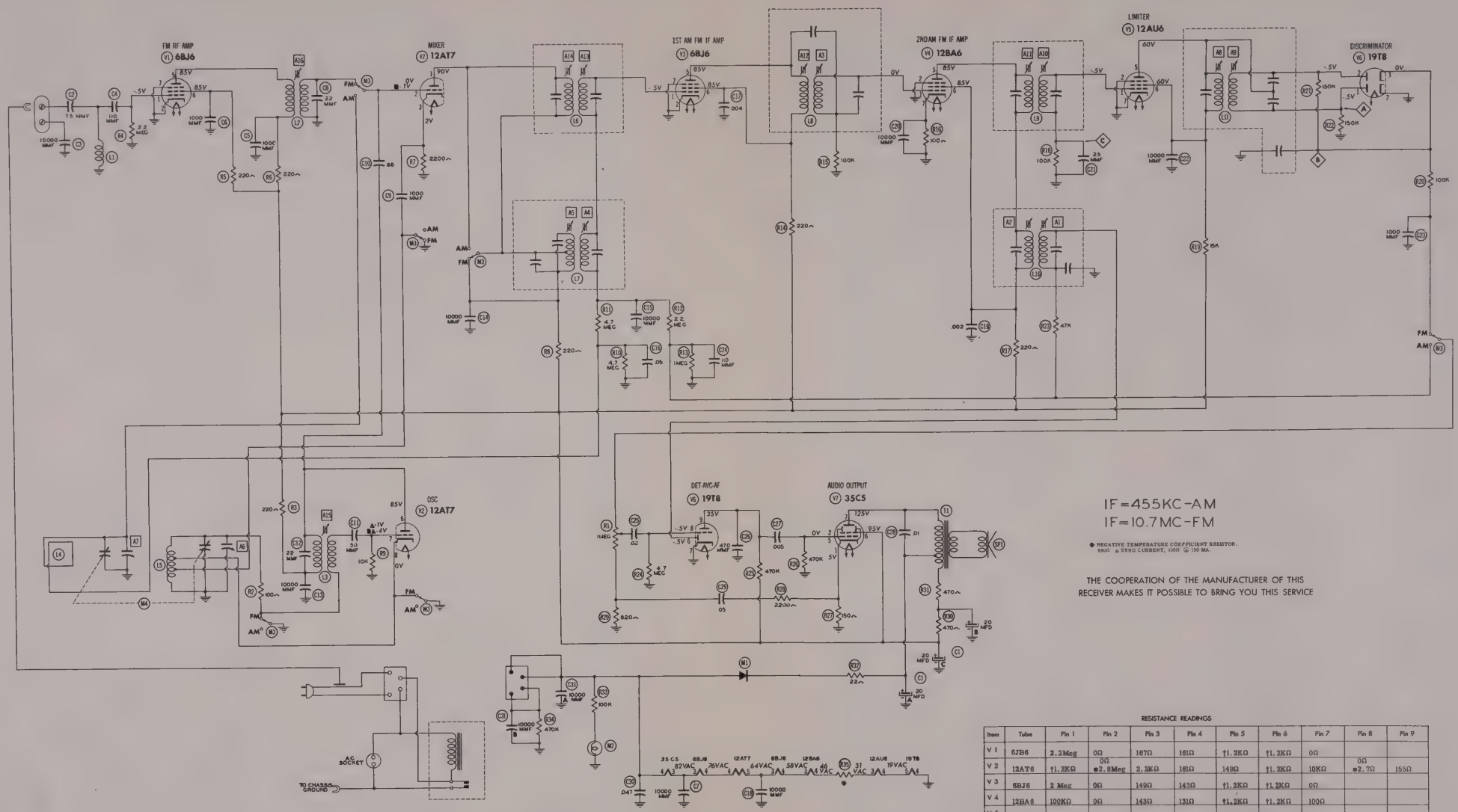


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



◆ NEGATIVE TEMPERATURE COEFFICIENT RESISTOR. 880Ω ▲ ZERO CURRENT, 106Ω Ⓐ 150 MA.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6JB6	2.2Meg	0Ω	167Ω	161Ω	†1. 2KΩ	†1. 2KΩ	0Ω		
V 2	12AT6	†1.2KΩ	0Ω ■2. 8Meg	2.2KΩ	161Ω	149Ω	†1. 2KΩ	10KΩ	0Ω ■2.7Ω	155Ω
V 3	6BJ6	2 Meg	0Ω	149Ω	143Ω	†1. 2KΩ	†1. 2KΩ	0Ω		
V 4	12BA6	100KΩ	0Ω	143Ω	131Ω	†1.2KΩ	†1. 2KΩ	109Ω		
V 5	12AU6	100KΩ	0Ω	31Ω	19Ω	†16KΩ	†16KΩ	0Ω		
V 6	19T8	180KΩ 180KΩ	160KΩ ■180KΩ	250KΩ ■330KΩ	0Ω	19Ω	1 Meg ■550KΩ	0Ω	4. 7 Meg	†470KΩ
V 7	35C5	150Ω	470KΩ	167Ω	202Ω	470KΩ	†965Ω	†297Ω		

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS NOTED
† MEASURED FROM OUTPUT OF M1
■ MEASURED IN "AM" POSITION
▲ TAKEN WITH VACUUM TUBE VOLTMETER

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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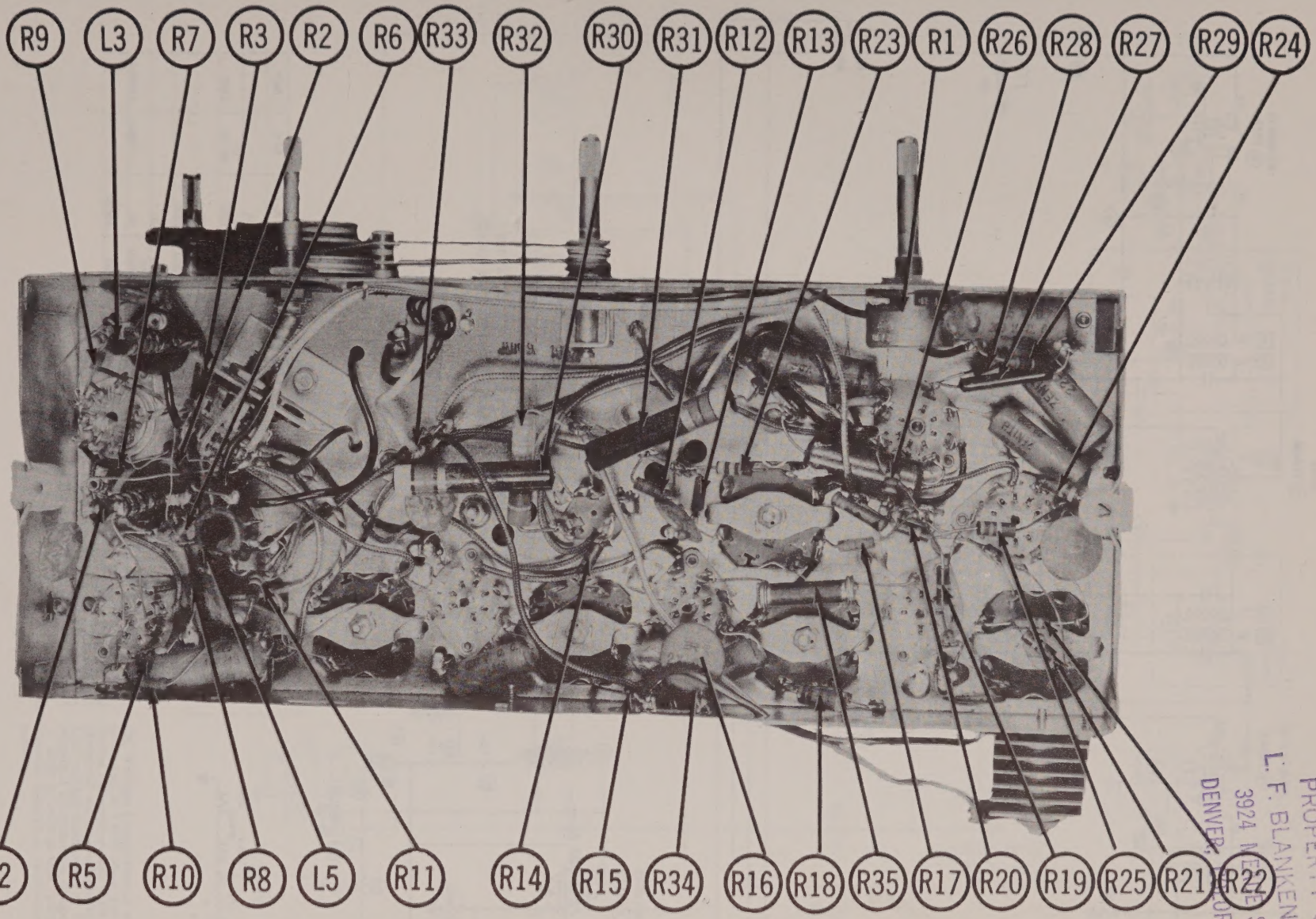
186-17



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and chassis.

AM ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to pin 2 (grid) of 12AT7 (V2) Low side to chassis.	455KC (400~Mod)	BC	600KC	Across Voice Coil	A1, A2, A3, A4, A5	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1600KC	"	1600KC	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. If range of A6 is inadequate adjust trimmer at other end of stator plates.
3.		"	1400KC	"	1400KC	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
4.	.05MFD	High side to pin 1 (grid) of 12AU6 (V5). Low side to chassis.	10.7MC (Unmod.)	FM	Any	DC probe to point (A). Common to chassis.	A8	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe to point (B). Common to chassis.	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
6.	"	High side to pin 1 (grid) of 12BA6 (V4) Low side to chassis.	"	"	"	DC probe to point (C). Common to chassis.	A10, A11	Adjust for maximum deflection.
7.	"	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	"	"	"	"	A12, A13 A14	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
4.	.05MFD	High side to pin 1 (grid) of 12AU6 (V5). Low side to chassis.	10.7MC (450KC Swp)	FM	Any point of non-interference.	Vert. amp. thru 47KΩ to point (B). Low side to chassis.	A8, A9	Adjust A8 for maximum amplitude and straightness of cross-over lines as in fig. 1. Adjust A9 so that 10.7MC occurs at center of crossover lines.
5.	"	High side to pin 1 (grid) of 12BA6 (V4). Low side to chassis.	"	"	"	Vert. amp. thru 47KΩ to point (C). Low side to chassis.	A10, A11	Adjust for curve of maximum amplitude and symmetry as in fig. 2.
6.	"	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	"	"	"	"	A12, A13, A14	"

Continue alignment with step 8.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
8.	270Ω Carbon Resistor	High side thru 270Ω to ungrounded FM antenna terminal. Low side to FM terminal.	98MC (Unmod)	FM	98MC	DC probe to point (A) Common to chassis.	A15, A16	Loosen slugs by applying a hot iron to cement. Adjust in order given for maximum deflection.

Replace chassis in cabinet, turn tuning gang fully closed and set pointer parallel with base of cabinet.

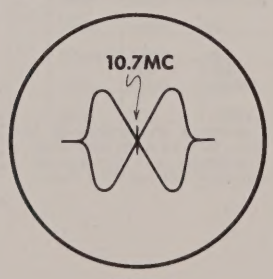


FIG. 1

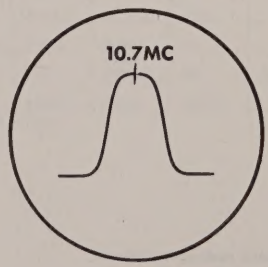


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ZENITH PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	FM RF Amplifier	6BJ6	6BJ6	7CM	
V2	Converter	12AT7	12AT7	9A	
V3	1st. FM AM IF Amp	6BJ6	6BJ6	7CM	
V4	2nd. FM AM IF Amp	12BA6	12BA6	7BK	
V5	Limiter	12AU6	12AU6	7BK	
V6A	Discriminater-Det-AVC-AF Amp.	19T8	19T8	9E	
B	Discriminater-Det-AVC-AF Amp.	19C8	19C8	9E	
V7	Audio Output	35C5	35C5	7CV	

CAPACITORS

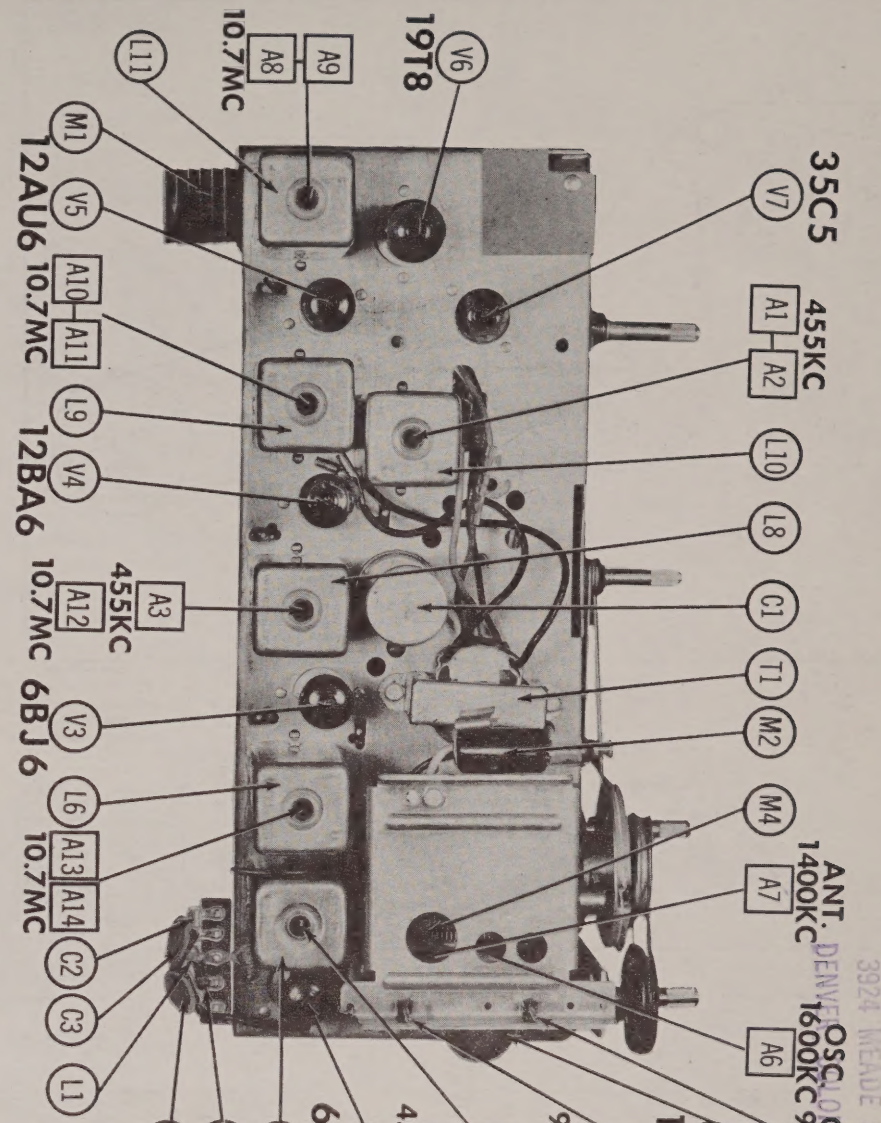
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	■20	150	22-2399	AFH3-05		UP22215		FP311.2	TVL-3433	
B	▲20	150								
C	20	150								
C2	7.5		22-1852							
C3	10000		22-3	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C4	110		22-5	SI110						
C5	1000		22-1676	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C6	1000		22-1676	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C7	10000		22-3	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C8	22		22-1506	SI22N080			N080-331-220			
C9	1000		22-1676	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C10	.68		22-1766		TCZ-.68		NP0K-R68			
C11	50		22-1367				N330L-500			
C12	22		22-1506	SI22N080			N080-331-220			
C13	10000		22-3	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C14	10000		22-3	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C15	10000		22-3	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C16	.05	200	22-829	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C17	.004	600	22-448	P688-004	D6-402	PTE6D4	GP2-333-402	PT624	6TM-D4	
C18	10000		22-3	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C19	.002	600	22-1220	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C20	10000		22-3	BPD-01	DD-102	TM5S1	821-01	DC-511	5HK-S1	
C21	25		22-1887	SI25	D6-250	5W5Q25	GP1K-250	UC-5425	5GA-Q25	
C22	10000		22-3	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C23	1000		22-2112	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C24	110		22-5	SI110						
C25	.02	600	22-830	P688-02	DF-203	PTE6S2		PT612	6TM-S2	
C26	470		22-6	SI470	D6-470	TM5T5	GP2K-471	UC-5347	5GA-T47	
C27	.005	600	22-229	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C28	.01	400	22-1126	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C29	.05	200	22-1158	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C30	.047	400	22-1775	489ZGXY-05		PJ4S47		PT4147	4TM-S47	
C31A	10000		22-2276	BPD-01	DD-3-103	TM5DS1	821-01	DC-511	5HK-2S1	
B	10000			BPD-01			821-01	DC-511		

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: ZENITH PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1 Meg	½	63-2798	Q13-137	AG-63-Z	BSK-70	U-53	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A

CHASSIS—TOP VIEW



DENVER RADIO
3924 MEADE ST.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R2	100Ω	1/2	63-1744		
R3	220Ω	1/2	63-1758		
R4	2.2Meg	1/2	63-1926	BTS-2.2Meg	
R5	220Ω	1/2	63-1758	BTS-220	
R6	220Ω	1/2	63-1758	BTS-220	
R7	2200Ω	1/2	63-1800	BTS-2200	
R8	220Ω	1/2	63-1758	BTS-220	
R9	10KΩ	1/2	63-1828	BTS-10K	
R10	4.7Meg	1/2	63-1940	BTS-4.7Meg	
R11	4.7Meg	1/2	63-1940	BTS-4.7Meg	
R12	2.2Meg	1/2	63-1926	BTS-2.2Meg	
R13	1 Meg	1/2	63-1912	BTS-1 Meg	
R14	220Ω	1/2	63-1758	BTS-220	
R15	100KΩ	1/2	63-1870	BTS-100K	
R16	100Ω	1/2	63-1744	BTS-100	
R17	220Ω	1/2	63-1758	BTS-220	
R18	100KΩ	1/2	63-1870	BTS-100K	
R19	15KΩ	1/2	63-1835	BTS-15K	
R20	100KΩ	1/2	63-1870	BTS-100K	
R21	150KΩ	1/2	63-1876	BTS-150K	
R22	150KΩ	1/2	63-1876	BTS-150K	
R23	47KΩ	1/2	63-1856	BTS-47K	
R24	4.7Meg	1/2	63-1940	BTS-4.7Meg	
R25	470KΩ	1/2	63-1898	BTS-470K	
R26	470KΩ	1/2	63-1898	BTS-470K	
R27	150Ω	1/2	63-686	BTS-150	
R28	2200Ω	1/2	63-1800	BTS-2200	
R29	820Ω	1/2	63-1782	BTS-820	
R30	470Ω	2	63-1069	BTB-470	
R31	470Ω	2	63-1069	BTB-470	
R32	22Ω	2	63-1450		
R33	100KΩ	1/2	63-1870	BTS-100K	
R34	470KΩ	1/2	63-1898	BTS-470K	
R35	*	*	63-2797		

* Special negative temperature coefficient resistor 880Ω at zero current, 100Ω at 150 MA.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA MERIT PART No.	REPLACEMENT DATA CHICAGO PART No.	REPLACEMENT DATA TRIAD PART No.	NOTES
T1	3.1KΩ	3.3Ω	275Ω Tap @ 1.7Ω	.6Ω	95-1302		A-3031	RO-3		

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA JENSEN PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	5 1/4"	PM	3.3Ω	49.716	ST-803 Mod. P525	52A1	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA MERIT PART No.	NOTES
L1	FM Ant. Coil	0Ω		20-355		
L2	FM RF Coil	0Ω	0Ω	S-13871		
L3	FM Osc. Coil	0Ω	0Ω	S-15733		
L4	AM Loop Ant.	1.4Ω		S-18446		
L5	AM Osc. Coil	6.3Ω		S-15694		Tapped @ 3.8Ω and 5.5Ω
L6	lst. FM IF	.3Ω	.3Ω	95-1150	FM-251 *	
L7	lst. AM IF	4.7Ω	16.5Ω	95-1250	BC-368 *	
L8	2nd. FM-AM IF	1.6Ω (FM)	26Ω (AM)	95-1251	BC-377 *	
L9	3rd. FM IF	.3Ω	.3Ω	95-1150	FM-251 *	
L10	3rd. AM IF	15Ω	16Ω	95-1102	BC-355 ■	
L11	Discriminator	.3Ω	.3Ω	95-1153	FM-250 *	

* Drill new mtg. holes
■ Use mtg. plate

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA ZENITH PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	NOTES
M1	.074A	212-7 212-13 *	NC5	5M1	1101A	6S100	* Alternate

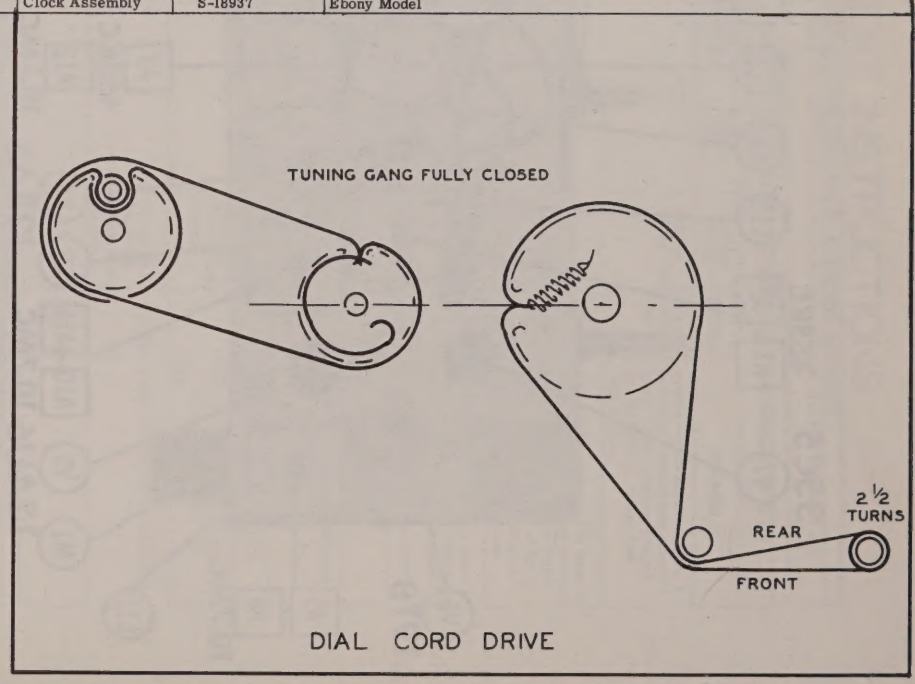
PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA ZENITH PART No.		NOTES
M2	Bayonet				100-105		Type No. #NE51

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Switch	85-616	AM-FM
M4	2 Gang Var. Cap	22-1742	AM (16-464MMF, 34-204MMF)
	Cabinet	14-1405	J733 (Walnut)
	Cabinet	14-1430	J733G (Green)
	Cabinet	14-1434	J733R (Mahogony)
	Cabinet	14-1435	J733Y (Ebony)
	Knobs	46-904	Alarm, Radio & Auto On-Off (Walnut)
	Knobs	46-905	Alarm, Radio & Auto On-Off (Ebony)
	Knobs	46-985	Alarm, Radio & Auto On-Off (Green)
	Knobs	46-972	Vol., Tuning & Bandswitch (Walnut & Mahogony)
	Knobs	46-984	Vol., Tuning & Bandswitch (Green)
	Knobs	46-989	Vol., Tuning & Bandswitch (Ebony)
	Dial Pointer	59-270	
	Clock Glass	192-145	
	Clock Assembly	S-18772	Walnut & Manogony Models
	Clock Assembly	S-18901	Green Model
	Clock Assembly	S-18937	Ebony Model



DIAL CORD DRIVE